ORDER NO. VMD0202007C8

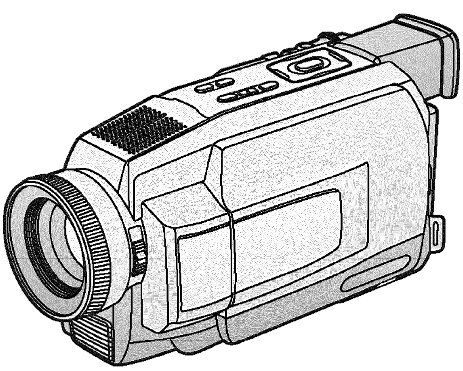
Service Manual

Digital Video Camcorder

NV-DS29EG

NV-DS29EGM / NV-DS29B / NV-DS29EGE / NV-DS30EG / NV-DS30EGM / NV-DS30B / NV-DS30EGE / NV-DS30EN / NV-DS30ENT / NV-DS30ENC / NV-DS30A / NV-DS50EN / NV-DS50ENT / NV-DS50A

VOL.1



SPECIFICATIONS

ITEM	SPECIFICATION	1	2	3	4
POWER	Source: Battery Pack; 7.2 V DC AC Adaptor; 7.9 V DC	○	○	○	○
	Comsumption: During Camera Recording Using The LCD Monitor; 4.3 W 4.5 W 4.9 W	○ – –	○ – –	– ○ –	– – ○
	During Camera Recording Using The Viewfinder; 2.7 W 2.9 W 3.3 W	○ – –	○ – –	– ○ –	– – ○
RECORDING FORMAT	Digital Video SD Format	○	○	○	○
TAPE FORMAT	Mini DV Cassette Tape (Tape width 6.35 mm)	○	○	○	○
TAPE SPEED	SP mode : 18.83 mm/s LP mode : 12.57 mm/s Recording/Playback Time: SP mode : 80 min. with DVM80 LP mode : 120min. with DVM80	○	○	○	○
CAMERA	PICK-UP ELEMENT: CCD (Charge Coupled Device)	○	○	○	○
	STANDARD ILLUMINATION: 1,400 lx	○	○	○	○
	MINIMUM REQUIRED ILLUMINATION: 1 lx (Digital Gain-up Mode)	○	○	○	○
	LENS: 10 : 1 Power Zoom, Auto Iris, F1.8, Macro (Full Range AF) Focal Length; 3.6-36 mm Filter Diameter; 43.0 mm	○	○	○	○
	IMAGE SENSOR: 1/4-inch CCD Image Sensor	○	○	○	○
	VIEWFINDER: 0.21-inch Electronic Viewfinder 2.5-inch LCD Monitor	○	○	○	○
VIDEO	RECORDING FORMAT: Digital Component	○	○	○	○

ITEM	SPECIFICATION	1	2	3	4
VIDEO	TELEVISION SYSTEM: CCIR: 625 lines, 50 fields PAL colour signal	○	○	○	○
	VIDEO OUTPUT LEVEL: 1.0 Vp-p, 75 ohm S-VIDEO OUTPUT LEVEL: Y: 1.0 Vp-p, 75 ohm C: 0.3 Vp-p, 75 ohm	○	○	○	○
AUDIO	RECORDING SYSTEM: PCM Digital Recording; 16 bit (48 kHz/2ch) 12 bit (32 kHz/4ch)	○	○	○	○
	OUTPUT LEVEL: 316 mV, 600 ohm	○	○	○	○
	MIC INPUT: Mic sensitivity -50 dB (Stereo mini jack)	○	○	○	○
DIGITAL STILL PICTURE	Digital Still Picture Output, Control Signal Input/Output (Transfer rate: max. 115 kbps)	○	○	○	–
DIGITAL INTERFACE	DV Output Terminal (IEEE1394, 4-pin) DV Input/Output Terminal (IEEE1394, 4-pin)	○ –	– ○	– ○	– ○
USB	Card reader/writer function, USB 1.1 compliant (max. 12 Mbps)	–	–	–	○
CARD MEMORY FUNCTION	RECORDING MEDIA: MultiMediaCard, SD Memory Card IMAGE COMPRESSION: JPEG	–	–	–	○
MICROPHONE	Stereo	○	○	○	○
SPEAKER	1 round speaker ∅ 20 mm	○	○	○	○
OPERATING TEMPERTURE	0 °C~40 °C	○	○	○	○
OPERATING HUMIDITY	10 %~80 %	○	○	○	○
Weight	570 g (without Battery and DV cassette) 580 g (without Battery and DV cassette)	○ –	○ –	○ –	– ○
Dimension	74 mm x 89 mm x 188 mm (W x H x D)	○	○	○	○

1. NV-DS29EG/ NV-DS29EGM/ NV-DS29B/ NV-DS29EGE
2. NV-DS30EG/ NV-DS30EGM/ NV-DS30B/ NV-DS30EGE
3. NV-DS30EN/ NV-DS30ENT/ NV-DS30ENC/ NV-DS30A
4. NV-DS50EN/ NV-DS50ENT/ NV-DS50A

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

1. SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. **IMPORTANT SAFETY NOTICE**
   There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.
2. **An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the**

technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.

3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 M Ω and 5.2 M Ω . When the exposed metal does not have a return path to the chassis, the reading must be infinity.

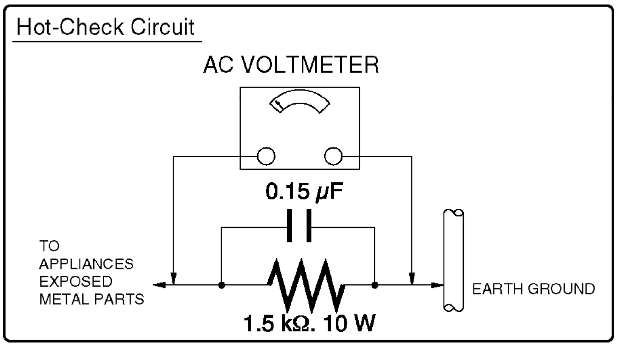
LEAKAGE CURRENT HOT CHECK

(See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5 k Ω , 10 W resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure 1.
3. Use an AC voltmeter, with 1 k Ω /V or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 mA. In case a

measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

Figure. 1



2. PREVENTION OF ELECTRO STATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.**
2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**
4. **Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package**

until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).

7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**
   CAUTION :
   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).**

3. INTRODUCTION

3.1. INTORODUCTION

This service manual contains technical information which will allow service personnel's to understand and service this model. Please place orders using the parts list and not the drawing reference unmbers.
If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with orginal service manual.

Note 1:

These movie cameras use AC Adaptor is DE-855AB This AC Adaptor is supplied as unit.
(See Parts List of this Service)

Note 2:

1. **This service manual does not contain the following information, because of the impossibility of servicing at component level.**
   A. Schematic Diagram, Block Diagram and Main C.B.A.
   B. Parts List for individual parts of Main C.B.A.
2. **The following category is/are recycle module part. Please send it/them to Central Repair Center.**
   ***Main C.B.A. (LSEP8165P1/Q1/R1/S1)**

When a part replacements is required for repairing each Main C.B.A., replace the assembly parts.
The following circuits are contained in Main Circuit.

3.2. CAUTION FOR AC CORD / (VJA0940 TYPE)

3.2.1. INFORMATION FOR YOUR SAFETY

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or

broadcast material may infringe copyright laws.

WARNING

To reduce the risk of fire or shock hazard, do not expose this equipment to rain or moisture.

CAUTION

To reduce the risk of fire or shock hazard and annoying interference, use the recommended accessories only.

FOR YOUR SAFETY

DO NOT REMOVE THE OUTER COVE

To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

3.3. CAUTION FOR AC MAINS LEAD

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.

A 5-ampere fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amperes and it is approved by ASTA or BSI to BS1362.

Check for the ASRA mark or the BSI mark on the body of the fuse.

ASTA mark ◈	BSI mark ♡

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

If the fitted moulded plug is unsuitable for the socket outlet in your home then the fuse should be removed and the plug cut off and disposed of safety.

There is a danger of severe electrical shock if the cut off plug is inserted into any 13-ampere socket.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt, please consult a qualified electrician.

3.3.1. Important

The wires in this mains lead are coloured in accordance with the following code:

Blue	Neutral
Brown	Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

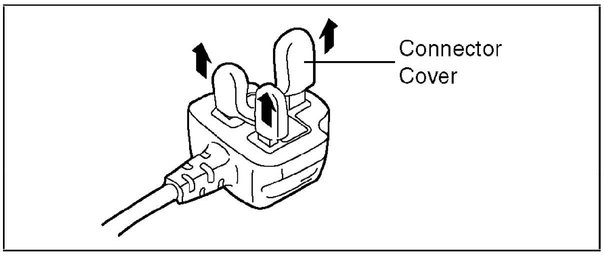
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol.

Earth Symbol	⏚

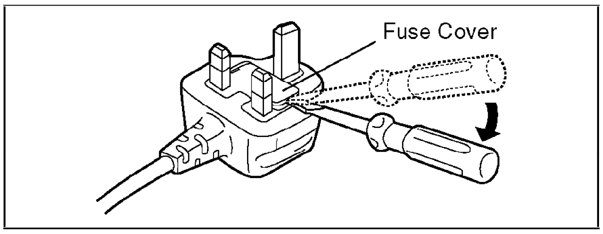
3.3.2. Before use

remove the Connector Cover as follows.

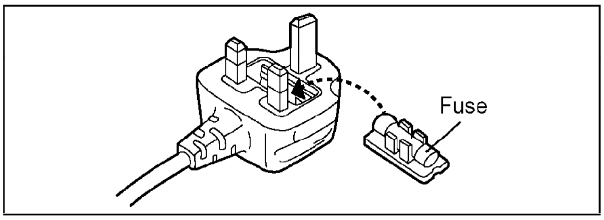

Connector
Cover

3.3.3. How to replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



2. Replace the fuse and attach the Fuse cover.



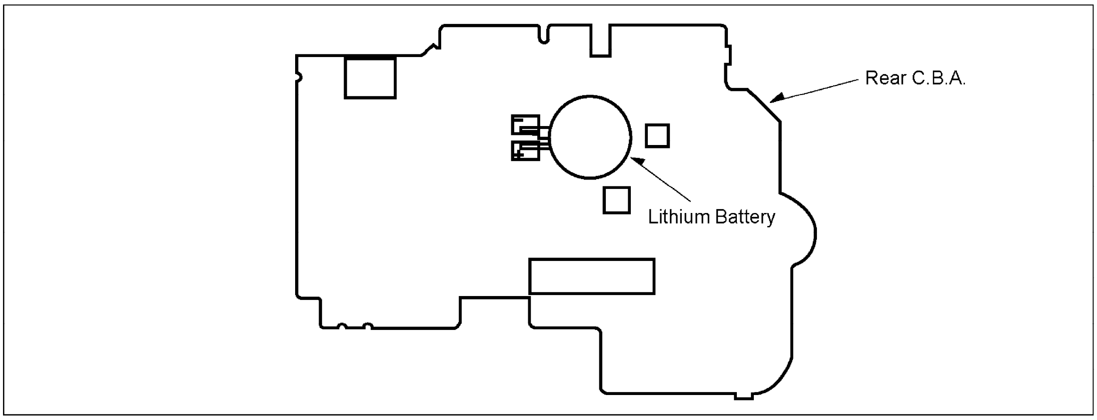
4. OPERATION GUIDE

5. HOW TO REPLACE THE LITHIUM BATTERY (PROCEDURE)

1. Remove the Rear C.B.A.. (Refer to Disassembly Procedures.)

2. Unsolder the Lithium Battery “LSSB0004” and then replace the new one. (See Fig. B1 .)

Fig. B1


Rear C.B.A.
Lithium Battery

Note:

The lithium battery is a critical component. (Type No.: LSSB0004.)
It must never be subjected to excessive heat or discharge.
It must therefore only be fitted in equipment designed specifically for its use.
Replacement batteries must be of the same type and manufacture.
They must be fitted in the same manner and location as the original battery, with the correct polarity contacts observed.
Do not attempt to re-charge the old battery or re-use it for any other purpose.
It should be disposed of in waste products destined for burial rather than incineration.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's instructions.

PRECAUTION

Le fait de remplacer incorrectement la pile peut présenter des risques d'explosion.
Remplacer la pile uniquement par une pile identique ou de type équivalent recommandée par le fabricant. Se débarrasser des piles usagées conformément aux instructions du fabricant.

VORSICHT

Bei einer falsch eingesetzten Batterie besteht Explosionsgefahr. Nur mit einer vom Hersteller empfohlenen Batterie vom gleichen Typ ersetzen.
Verbrauchte Batterien beim Fachhändler oder einer Sammelstelle für Sonderstoffe abliefern.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning má kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

6. SERVICE NOTES (PLEASE READ)

6.1. SERVICE NOTES

6.1.1. EXTENSION CABLES FOR SERVICE POSITION

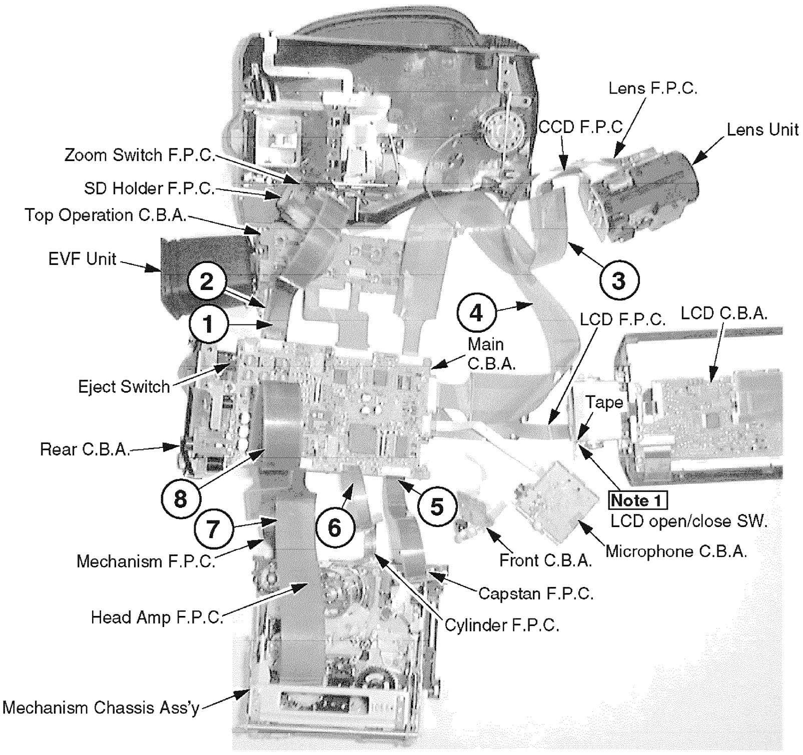
Using the following Extension Cables, place the unit as shown for check and service.
Extension Cables (No.5 ~ No.8) are used for improving serviceability. (They are not necessarily used.)

NO.	PART NUMBER	PART NAME	CONNECTION
①	LSUA0030	11Pin Extension Cable	FP6 on Main C.B.A. ~ SD Holder F.P.C. of Side Case L Unit
②	LSUA0020	20Pin Extension Cable	FP9 on Main C.B.A. ~ Zoom Switch F.P.C. of Side Case L Unit
③	VFKW0124A	14Pin Extension Cable	FP301 on Main C.B.A. ~ CCD F.P.C. on Lens Unit
④	VUVS0012	22Pin Extension Cable	FP701 on Main C.B.A. ~ Lens F.P.C. on Lens Unit
⑤	LSUA0017	18Pin Extension Cable	FP4 on Main C.B.A. ~ Capstan F.P.C. on Mechanism Chassis Ass'y
⑥	LSUA0016	10Pin Extension Cable	FP3 on Main C.B.A. ~ Cylinder F.P.C. on Mechanism Chassis Ass'y
⑦	VUVS0007	12Pin Extension Cable	FP5 on Main C.B.A. ~ Head Amp F.P.C. on Mechanism Chassis Ass'y
⑧	VUVS0015	28Pin Extension Cable	FP2 on Main C.B.A. ~ Mechanism F.P.C. on Mechanism Chassis Ass'y

Note :

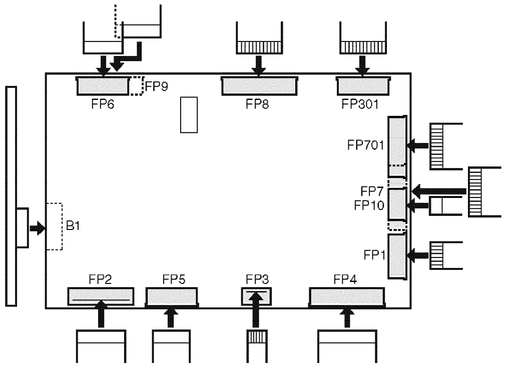
1. **The LCD open/close SW. is for changing between LCD Display or EVF Display. When turning on LCD Display, place some paper or tape, etc. on LCD open/close SW. so that this SW. stays ON.**
2. **Connect the F.P.C.s to the connectors, verifying the direction of F.P.C. as shown.**
3. **Use a grounded ESD wrist strap while disassembling the Lens portion.**
4. **Use extreme care when unplugging or plugging in connectors.**

Fig. 1


Lens F.P.C.
CCD F.P.C
Lens Unit
Zoom Switch F.P.C.
SD Holder F.P.C.
Top Operation C.B.A.
EVF Unit
2
1
4
3
LCD F.P.C.
LCD C.B.A.
Main C.B.A.
Eject Switch
Tape
Rear C.B.A.
Note 1
LCD open/close SW.
8
7
6
5
Mechanism F.P.C.
Front C.B.A.
Microphone C.B.A.
Capstan F.P.C.
Head Amp F.P.C.
Cylinder F.P.C.
Mechanism Chassis Ass'y

Non ZIF connectors are on the Main C.B.A. as shown in gray.

Direction of F.P.C.s connection

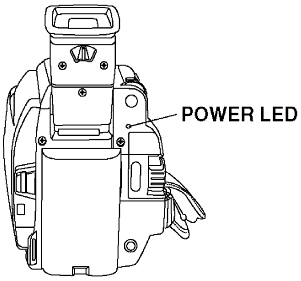

FP9
FP6
FP8
FP301
FP701
FP7
FP10
FP1
B1
FP2
FP5
FP3
FP4

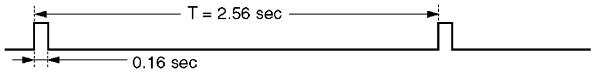
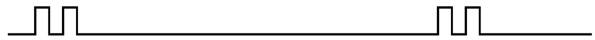
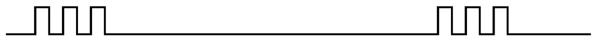
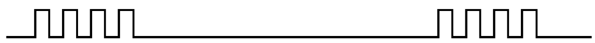
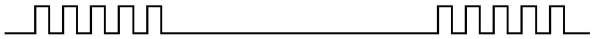
Main C.B.A. (component side)

6.1.2. SIMPLIFIED FAULT FINDING DATA (SELF-DIAGNOSTIC SYSTEM)

When following conditions occur, the Power LED will flash according to the condition.

Fig. 2-1



CONDITION	POWER LED FLASHING TIMING & POWER OFF TIMING
T-Reel Lock	After 1 minute flash, power will be turned off. 
S-Reel Lock	After 1 minute flash, power will be turned off. 
Unloading Lock	After 1 minute flash, power will be turned off. 
Loading Lock	After 1 minute flash, power will be turned off. 
Cylinder Lock	After 1 minute flash, power will be turned off. 
Focus Motor Lock	Power LED flashes at 1 Hz timing.
Zoom Motor Lock	Power LED flashes at 1 Hz timing.
Dew Detection	After 18 seconds flash at 1 Hz timing, power will be turned off.

(For model with SD/MMC Slot)

If any of the following numbers appear on-screen, the palmcorder may need service. Do not remove the battery (if attached) and write down the displayed number.

Fig. 2-2

Error No.	Error Description
U11	Card Error
U12	Card Error
U13	Card Error
U14	Card/Camcorder Dialogue Error
U15	Card Access Error
U16	Card Access Error
U30	Error other than above

Note:

While battery remains, the Error No. will be displayed again when the

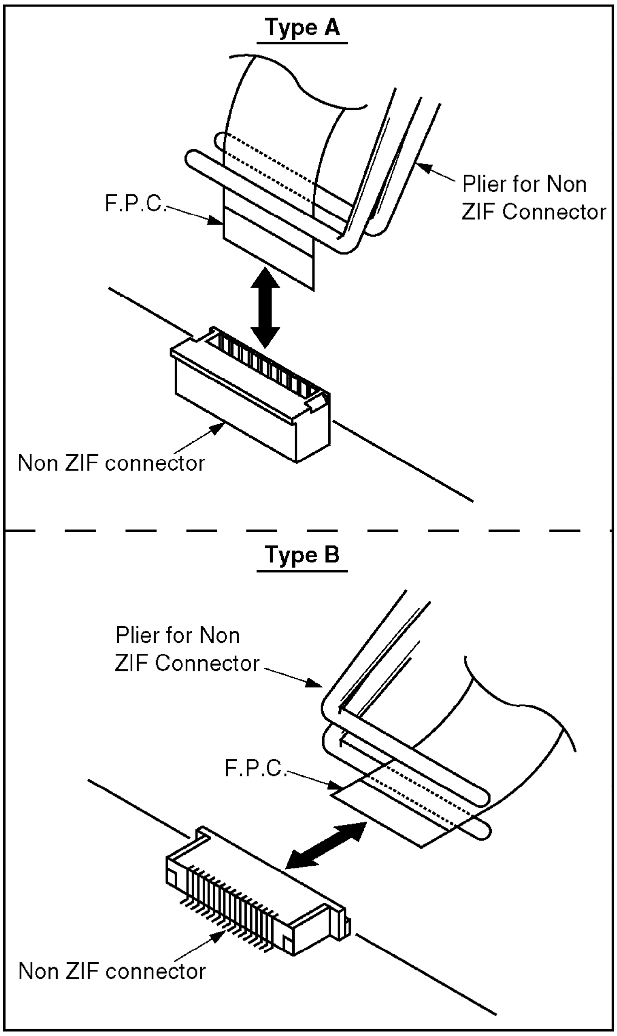
power is switched off and on again. (Once the Battery is removed or dead, Error No. will not remain in the memory.)

6.1.3. REMOVAL/INSTALLATION OF F.P.C. FROM NON ZIF (Zero Insertion Force) CONNECTOR

Removal/Installation of F.P.C. from the Non ZIF (Zero Insertion Force) connector:

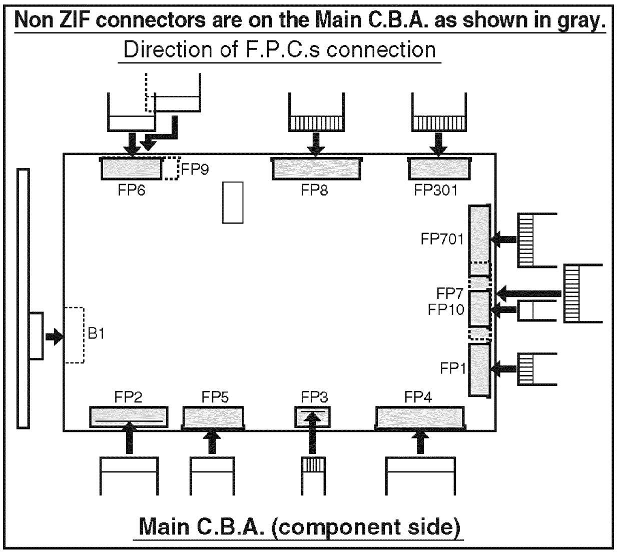
1. **The Non ZIF connectors and the ZIF connectors are used on the unit. And there are 2 types (Type A, Type B) of Non ZIF connectors.**
2. **To remove the F.P.C. from the Non ZIF connector, use the Plier for Non ZIF Connector (LSVQ0028) to pull out the F.P.C. as shown. The same Plier for Non ZIF Connector (LSVQ0028) should also be used to install the F.P.C. to the Non ZIF Connector.**

Fig. 3-1


Type A
F.P.C.
Plier for Non ZIF Connector
Non ZIF connector
Type B
Plier for Non ZIF Connector
F.P.C.
Non ZIF connector

3. **Connect the F.P.C.s to the Non ZIF connectors, verifying the direction of F.P.C as shown.**

Fig. 3-2


Non ZIF connectors are on the Main C.B.A. as shown in gray.
Direction of F.P.C.s connection
FP6
FP9
FP8
FP301
FP701
FP7
FP10
B1
FP1
FP2
FP5
FP3
FP4
Main C.B.A. (component side)

6.1.4. METHOD FOR LOADING/UNLOADING OF MECHANISM

CAUTION:

If loading does not start after DC Power Supply is applied, DO NOT continue to applying DC Power Supply.

Apply +3 VDC Power Supply to the Loading Motor terminals.

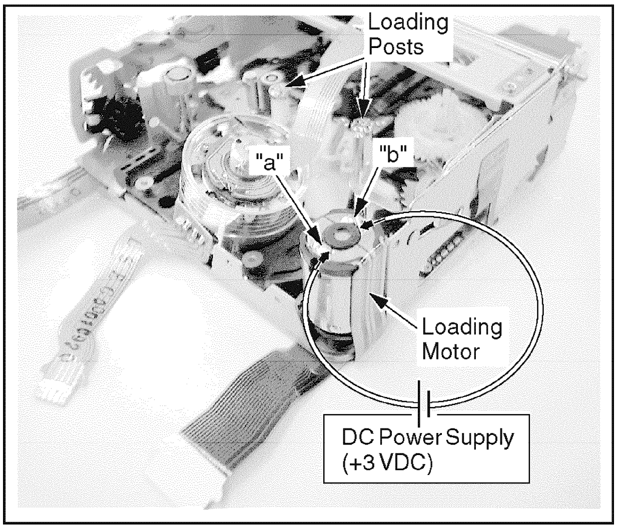
Loading:

DC (-) to Portion "a," DC (+) to Portion "b"

Unloading:

DC (+) to Portion "a," DC (-) to Portion "b"

Fig. 4


Loading
Posts
"a"
"b"
Loading
Motor
DC Power Supply
(+3 VDC)

6.1.5. METHOD FOR EJECTING WITH POWER OFF

CAUTION:

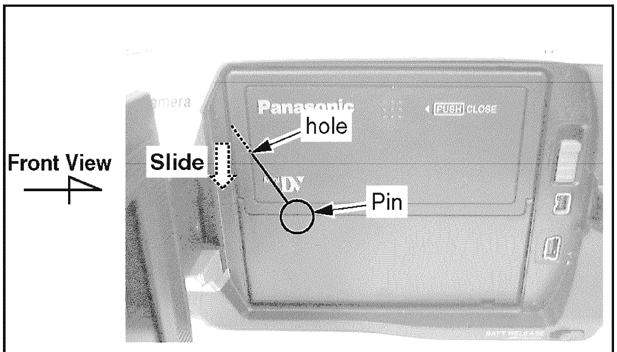
Make sure that a cassette tape is not in when this method is used, or a cassette tape will be damaged. When a cassette tape is jammed, DO NOT eject manually. Refer to "HOW TO REMOVE A JAMMED TAPE."

1. Insert the Pin or Straightened Paper Clip into the hole on the Cassette

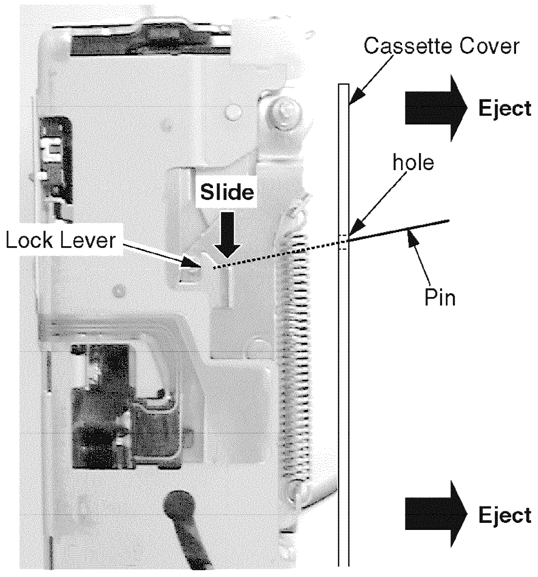
Cover.

2. **Slide the Lock Lever of Mechanism Chassis Ass'y.**
3. **The Cassette Cover will open. (Eject)**

Fig. 5

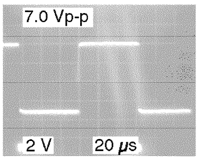

Front View
Slide
Panasonic
PUSH CLOSE
hole
Pin

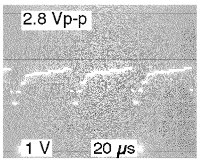
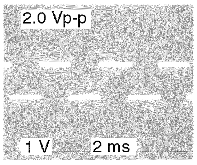
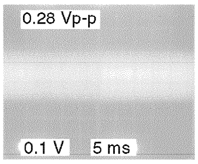
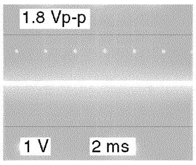
Front View (Lock Lever in the camcorder)

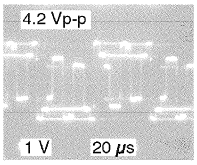
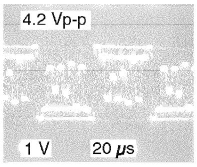
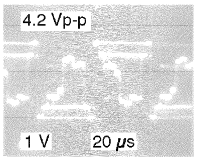
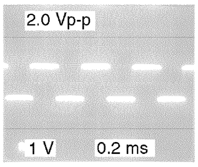
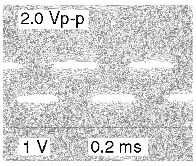

Cassette Cover
Eject
hole
Slide
Lock Lever
Pin
Eject

6.1.6. SIGNAL DESCRIPTION ON MEASURING BOARD FOR ELECTRICAL ADJUSTMENT (VFK1308E)

A signal check can be performed using the Interface Board.

Signal Name (on board)	Description	Waveforms
CAM_RESET	Not used	---------------
E2DATA	Not used	---------------
CAM_TEST	Not used	---------------
E2CLK	Not used	---------------
EVR3V	Not used	---------------
VD	Not used	---------------
SBO	Not used	---------------
SBI	Not used	---------------
CLK	Not used	---------------
E2CS	Not used	---------------
MREF/VREF-T	Not used	---------------
AFST	Not used	---------------
UARTI	To monitor RS-232C received data	---------------
UARTO	To monitor RS-232C transmitted data	---------------
VTR_RESET	Power microcontroller reset: low	---------------
VTR_TEST	Not used	---------------
BST_TEST	Not used	---------------
TCK	Not used	---------------
TMS	Not used	---------------
TDO	Not used	---------------
TDI	Not used	---------------
MIC_CLK	MIC serial clock output from camcorder to PC	---------------
MIC_DT	MIC serial data output from camcorder to PC	---------------
MON_PLL	Not used	---------------
MON_VCOM	To monitor V-COM signal at Pin 10 of FP8002 on LCD C.B.A.	 Camera Mode

Signal Name (on board)	Description	Waveforms
F_VSS	Not used	---------------
F_SDA	Not used	---------------
F_SCLK	Not used	---------------
F_MODE	Not used	---------------
F_VEE	Not used	---------------
VCC41	Not used	---------------
VCC9	Not used	---------------
F_VCC	Not used	---------------
F_OE	Not used	---------------
F_BUSY	Not used	---------------
MON_CR	Not used	---------------
MON_CB	Not used	---------------
MON_B	Not used	---------------
MON_G	To monitor lower video drive signal to the LCD Panel at Pin 27 of IC901 on Main C.B.A.	 Camera Mode
HID	To monitor HID signal at Pin 36 of IC3201 on Main C.B.A.	 Rec/PB Mode
ENVELOPE	To monitor Envelope signal at Pin 41 of IC5001 on Main C.B.A.	 PB Mode
RF GND	Not used	---------------
RECI	Not used	---------------
SPA	To monitor SPA signal at Pin 35 of IC3201 on Main C.B.A.	 PB Mode

Signal Name (on board)	Description	Waveforms
ATFI	To monitor ATF signal at Pin 20 of IC3201 on Main C.B.A.	---------------
VCO	Not used	---------------
D_GND	Grounding terminal	---------------
TP1	Not used	---------------
IRISOPEN	Not used	---------------
MB (VREF_+/-)	Not used	---------------
MA	Not used	---------------
CPOB	To monitor LCD red signal at Pin 8 of IC8001 on LCD C.B.A.	 Camera Mode
FNO	To monitor LCD green signal at Pin 6 of IC8001 on LCD C.B.A.	 Camera Mode
VREF_H/L	To monitor LCD blue signal at Pin 4 of IC8001 on LCD C.B.A.	 Camera Mode
CAM-A_GND	Not used	---------------
CDS	To monitor capstan FG signal at Pin 24 of IC2001 on Main C.B.A.	 Rec/PB Mode(SP)  Rec/PB Mode(LP)
CAM5V	Power terminal	---------------
CDS/AGC	Not used	---------------
VREF_H/L	Not used	---------------
ADIN	Not used	---------------

6.1.7. HOW TO REMOVE A JAMMED TAPE

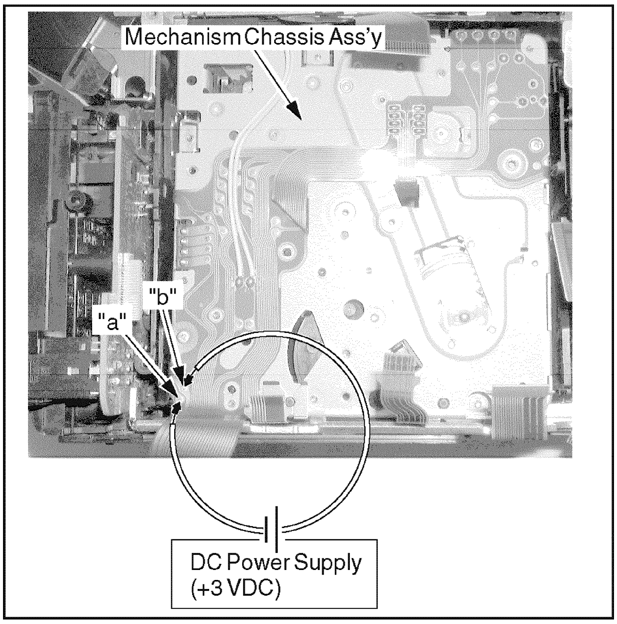
Remove a jammed tape in Electrical Method as follows:

1. **Remove the Cabinet Parts. Then, remove the 3 Screws and the Mechanism Base Unit from the Mechanism Chassis Ass'y as shown. Refer to "CABINET SECTION" & "MECHANISM SECTION" in DISASSEMBLY/ASSEMBLY PROCEDURES.**
2. **Apply +3 V DC Power Supply to the Portion "a" and "b" on the Mechanism F.P.C. Unit.**

   Note:

   DO NOT let eject the Garage Unit with grasping the Cassette Cover. If the Garage Unit is in the up position, a cassette tape may be damaged.

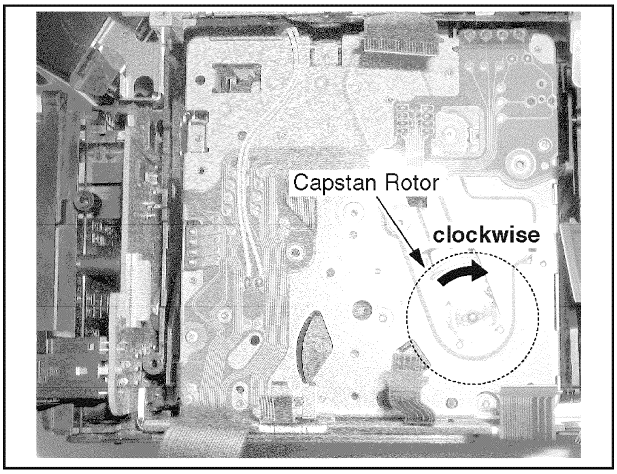
Fig. 6-1


Mechanism Chassis Ass'y
"b"
"a"
DC Power Supply
(+3 VDC)

3. When the Mechanism is in EJECT position (snapped sound), remove the Power Supply immediately.

4. Rewind the tape into a cassette tape by turning the Capstan Rotor clockwise with grasping the Cassette Cover.

Fig. 6-2


Capstan Rotor
clockwise

5. Take out a cassette tape from the Garage Unit.

6.1.8. EEPROM DATA

CAUTION:

Be sure to save the EEPROM data using PC-EVR Adjustment Program before service and adjustment in order to make sure to avoid an accidental data loss, etc. as follows. Refer to "SET UP OF PC-EVR ADJUSTMENT PROGRAM" in ELECTRICAL ADJUSTMENT.

EEPROM IC

C.B.A.	EEPROM IC Ref. No.
Main C.B.A.	IC6007

1.How to save the EEPROM data to your PC

1. **Start up the PC-EVR Adjustment Program.**
2. **Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.**
3. **Select "5. Save all EEPROM data." in Read (Save)/Write All EEPROM data menu, and then press "Enter" key.**
4. **Input the file name, and then press the "Enter" key. The data of EEPROM IC will be stored to your PC.**

2.How to write the EEPROM data which was stored in your PC to EEPROM IC

1. **Start up the PC-EVR Adjustment Program.**
2. **Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.**
3. **Select "6. Writing from stored data files." in Read (Save)/Write All EEPROM data menu, and then press "Enter" key.**
4. **Input the saved file name, and then press "Enter" key. The data of EEPROM IC will be written in EEPROM IC.**

3.How to initialize the EEPROM IC

When the Main C.B.A. is replaced, be sure to write the initial data to EEPROM IC. And adjust the camcorder.

1. **Start up the PC-EVR Adjustment Program.**
2. **Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.**
3. **Select "6. Writing from stored data files." in Read (Save)/Write All EEPROM data menu, and then press "Enter" key.**
4. **Input the saved file name, and then press "Enter" key. The data of EEPROM IC will be written in EEPROM IC.**
   OR;
   Select "7. Writing of Initial data." and then press "Enter" key. And press "Enter" key once again.

4.How to input ID Number

The ID number is in the EEPROM.

There are two ways to write the data of EEPROM IC after replacing Main C.B.A. as follows:

- **Selecting "6. Writing from stored data files," ID Number with stored data file will be written automatically.**
- **Selecting "7. Writing of initial data," ID Number needs to be input. There are two methods, "a" or "b," to input ID Number as follows.**

a When writing ID Number from the saved data:

1. **Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.**
2. **Input the saved file name, and then press "Enter" key. ID Number will be written automatically.**

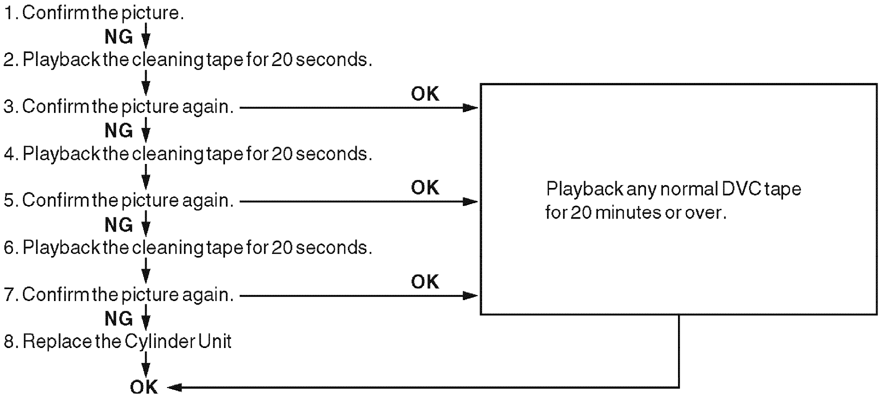
b When the original ID information can not be read because of destruction of EEPROM etc.:

1. **Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.**
2. **Select "8. Write ID from stored file." and then press "Enter" key. ID Number will be written automatically.**

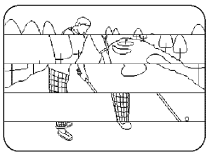
6.1.9. HOW TO USE THE DVC HEAD CLEANING TAPE / VFK1451

Please use the cleaning tape as described below.

Note: This cleaning tape has a total playback time of 2 minutes 30 seconds. it can be used 30 times.


1. Confirm the picture.
NG
2. Playback the cleaning tape for 20 seconds.
3. Confirm the picture again.
OK
NG
4. Playback the cleaning tape for 20 seconds.
5. Confirm the picture again.
OK
NG
6. Playback the cleaning tape for 20 seconds.
7. Confirm the picture again.
OK
NG
8. Replace the Cylinder Unit
OK
Playback any normal DVC tape for 20 minutes or over.

The picture will look like this in case of clogged video head.



6.1.10. HOW TO REPLACE THE LAMP (LSLL0028) OF BUILT-IN LIGHT

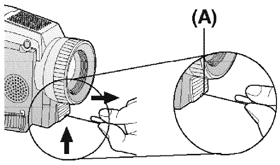
Fig. 7

DANGER:

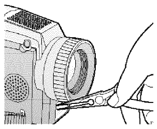
Use only replacement Lamp (PART NO. LSLL0028) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils decrease Lamp life.
Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

Replacing the lamp

1 **Insert a rigid wire, such as an extended paper clip into point (A) and lift cover up.**



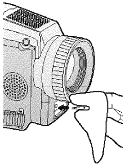
2 **Using Tweezers or needle-nose pliers, carefully remove lamp.**



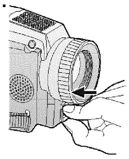
Before you begin

Set POWER to OFF.

3 **Replace lamp using a clean cloth or tissue. (Do not touch with fingers.)**



4 **Replace Light Protector.**



Note

Handle lamp gently. Excessive force may cause lamp to crack.

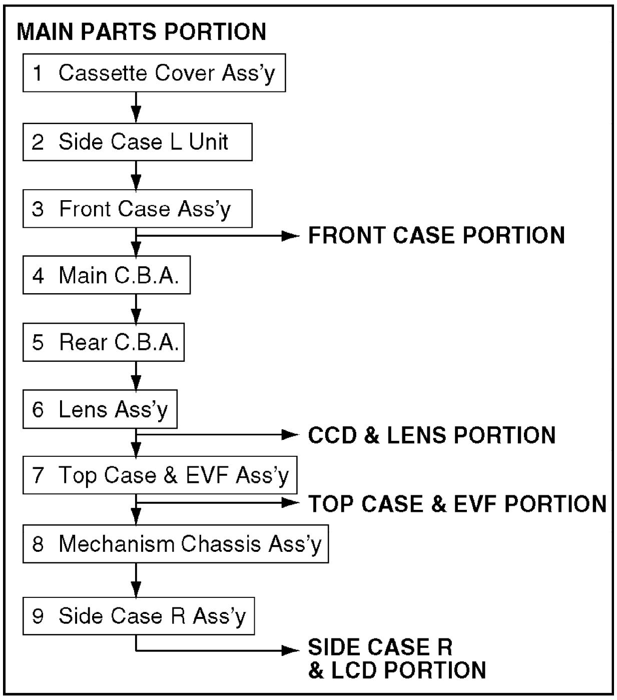
7. DISASSEMBLY/ASSEMBLY PROCEDURES

7.1. CABINET SECTION

7.1.1. DISASSEMBLY FLOWCHART

This flow chart indicates the disassembly steps of the cabinet parts and the P.C.Boards in order to gain access to item (s) to be serviced. When reassembling, perform the step (s) in the reverse order. Bend, route and dress the wires as they were originally.

Fig. D1


MAIN PARTS PORTION
1 Cassette Cover Ass'y
2 Side Case L Unit
3 Front Case Ass'y
FRONT CASE PORTION
4 Main C.B.A.
5 Rear C.B.A.
6 Lens Ass'y
CCD & LENS PORTION
7 Top Case & EVF Ass'y
TOP CASE & EVF PORTION
8 Mechanism Chassis Ass'y
9 Side Case R Ass'y
SIDE CASE R
& LCD PORTION

Note :

1. **When removing the cabinet, work with care so as not to break the Locking Tabs.**
2. **Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.**
3. **When reinstalling, ensure that the connectors are connected and electrical components have not been damaged.**
4. **Do not supply power to the unit during disassembly and reassembly.**

7.1.2. Disassembly Method

7.2. MECHANISM SECTION

This procedure starts with the condition that the cabinet parts and Main C.B.A. have been removed.
When reassembling, perform the step(s) in the reverse order.
Perform all disassembly/reassembly and alignments procedures in STOP Position except disassembly/reassembly and alignment procedures which have the special Notes.

STEP LOC. No.	Prior Step (s)	Part	Fig. No.	Remove	Alignment /Adjustment
①	-----	Mechanism Base Unit	DM3	3(413), (478)	
②	-----	Guide Piece L	DM4	(478), (L-2)	
③	-----	Guide Piece R	DM4	(478), (L-2)	
④	2,3	Garage Unit	DM4		
⑤	-----	Cylinder Unit	DM5	3(503)	Adjustment
⑥	2,3,4	Damper Unit	DM6	(504)	
⑦	1	DEW Sensor/ DEW Cable	DM7	Unsolder	
⑧	1,7	Mechanism F.P.C. Unit	DM8	2(478), 4(L-3), Unsolder	
⑨	-----	Reduction Gear B	DM9	(477)	
⑩	2,3,4	Mechanism Cover Unit	DM10	(432), (L-4), (475)	
⑪	2,3,4,10	Idler Arm Unit	DM11		
⑫	2,3,4,10,11	Center Gear	DM11		
⑬	2,3,4	Tension Arm Unit	DM12	(477)	Adjustment
⑭	2,3,4,13	S Reel Table	DM13	(475)	
⑮	2,3,4,	T Reel Table	DM13	(475)	
⑯	-	Not used	-	-	
⑰	2,3,4	T Brake Unit	DM15	(L-5), Screw, Plate	
⑱	-	Not used	-	-	
⑲	2,3,4	Pinch Arm Unit	DM16	(473), Hooking Portions	Adjustment
⑳	5,9,13,19	Rail	DM17	(473), (L-6), 4(L-7)	
㉑	5,9,13,19,20	Cylinder Base Unit	DM18	3(432)	Adjustment
㉒	5,9,13,19,20	S Arm Unit	DM19		Gear Alignment
㉓	5,9,13,19,20,22	T Arm Unit	DM19		Gear Alignment
㉔	5,9,13,19,20,22	S Post Unit	DM19		Adjustment
㉕	5,9,13,19,20,22,23,24	T Post Unit	DM19		Adjustment
㉖	5,9,13,19,20,21,22	Loading Motor Unit	DM20	2(429)	
㉗	2,3,4,10,11,12,13,14,15	Sensor F.P.C.	DM21	2(432)	
㉘	2,3,4,10,11,12,13,14,15,27	Tension Drive Arm	DM22		
㉙	2,3,4,10,11,12,13,14,15,27,28	S Brake Drive Lever	DM22		
㉚	2,3,4,10,11,12,13,14,15,27,28,29	Cam Gear	DM23		Gear Alignment
㉛	2,3,4,10,11,12,13,14,15,19,27	Pinch Drive Arm	DM24		
㉜	2,3,4,5,9,10,11,12,13,14,15,19,20,22,23,24,25,27,28,29,30	Intermediate Gear	DM24		Gear Alignment
㉝	1,2,3,4,5,7,8,9,10,11,12,13,14,15,19,20,21,22,23,24,25,27,28,29,30	Mode Switch	DM25	(432)	Gear Alignment
㉞	1,2,3,4,7,8	MIC Switch	DM26	(432)	
㉟	2,3,4,10,11,12,13,14,15,17,19,27,28,29,30,31	Main Plate Unit	DM27		Gear Alignment
㊱	2,3,4,10,11,12,13,14,15,17,19,27,28,29,30,31,35	T4 Drive Arm	DM28		
㊲	2,3,4,10,11,12,13,14,15,17,19,27,28,29,30,31,35,36	Drive Pulley	DM29		
㊳	2,3,4,5,6,9,10,11,12,13,14,15,17,19,20,21,22,23,24,25,27,28,29,30,31,35,36,37,39	Capstan Unit	DM30	(471), 2(432)	Adjustment
㊴	2,3,4,5,6,9,10,11,12,13,14,15,17,19,20,21,22,23,24,25,27,28,29,30,31,35,36,37,38	Timing Belt	DM30		
㊵	2,3,4,5,6,9,10,11,12,13,14,15,17,19,20,21,22,23,24,25,27,28,29,30,31,35,36,37,38,39	Capstan Adjust Spring	DM30		
㊶	1,2,3,4,7,8,34	Lock Lever Unit	DM31	2(473), Hooking Portion	
㊷	1,2,3,4,7,8,34,41	Lock Pick Lever	DM31		

↑ A ↑ B ↑ C ↑ D ↑ E ↑ F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
B: Steps to be completed prior to the current step.
C: Part to be removed or installed.
D: Fig. No. showing Procedure or Part Location.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
2(478)= 2 Screws (478), 2(L-1) =2 Looking Tabs (L-1)
F: Alignment/ Adjustment which is required when installing or replacing each parts.

CAUTION:

a. Use a wrist strap to provide ESD protection while disassembling or assembling.
b. Removed Cut Washer is not reusable. If removed, install a new one.
Following Cut Washers are to be used:

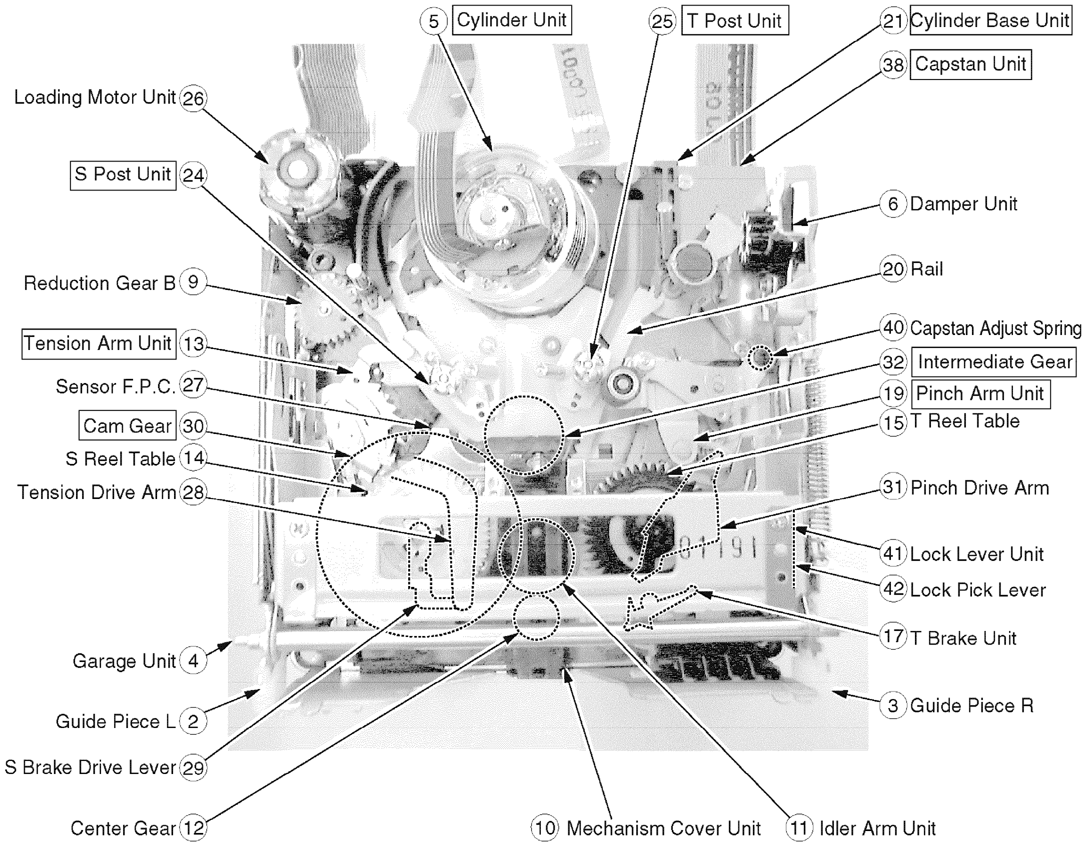
Ref. No.	Part No.
(473)	VMX2026
(475)	VMX2750
(477)	VMX2028

7.2.1. Inner Parts Location

Note: BOX indicates alignment (Gear alignment or Tape Path Alignment with L.I.S.T.A.) required when a part is replaced.

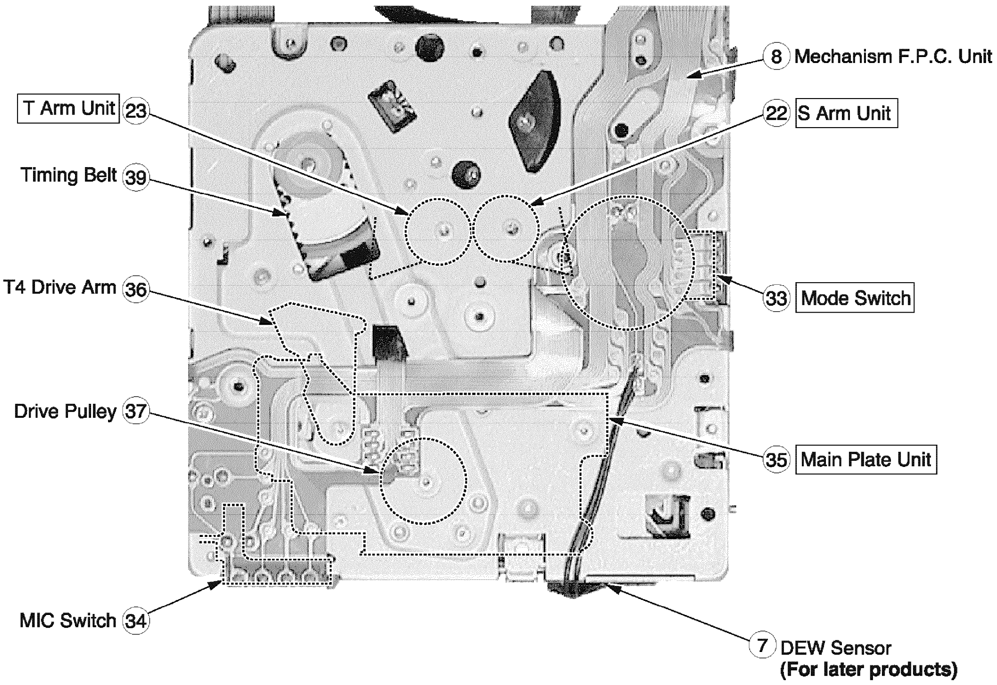
7.2.1.1. TOP VIEW

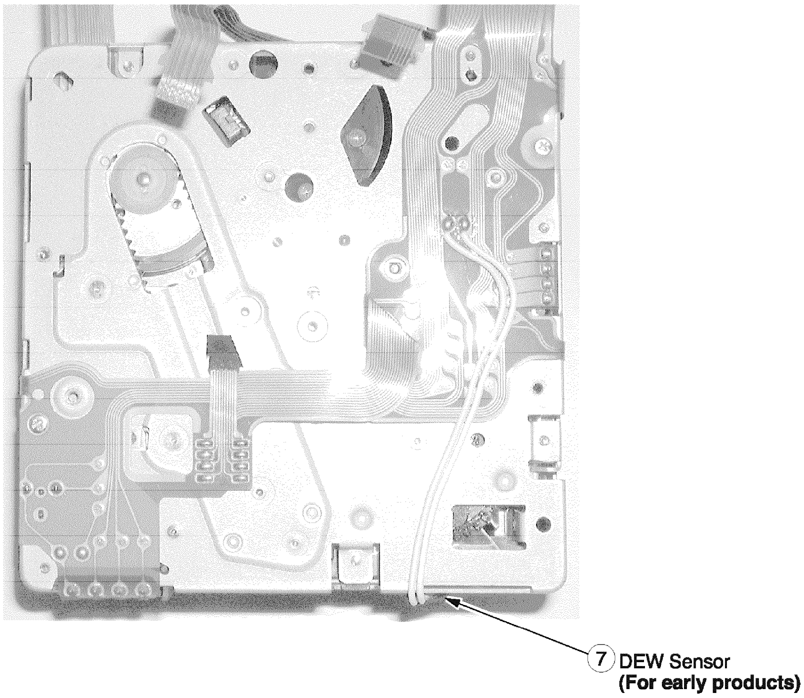
Fig. DM1-1


5 Cylinder Unit
25 T Post Unit
21 Cylinder Base Unit
38 Capstan Unit
Loading Motor Unit 26
S Post Unit 24
6 Damper Unit
Reduction Gear B 9
20 Rail
40 Capstan Adjust Spring
Tension Arm Unit 13
32 Intermediate Gear
Sensor F.P.C. 27
19 Pinch Arm Unit
Cam Gear 30
15 T Reel Table
S Reel Table 14
Tension Drive Arm 28
31 Pinch Drive Arm
41 Lock Lever Unit
42 Lock Pick Lever
17 T Brake Unit
Garage Unit 4
Guide Piece L 2
3 Guide Piece R
S Brake Drive Lever 29
Center Gear 12
10 Mechanism Cover Unit
11 Idler Arm Unit

7.2.1.2. BOTTOM VIEW

Fig. DM1-2

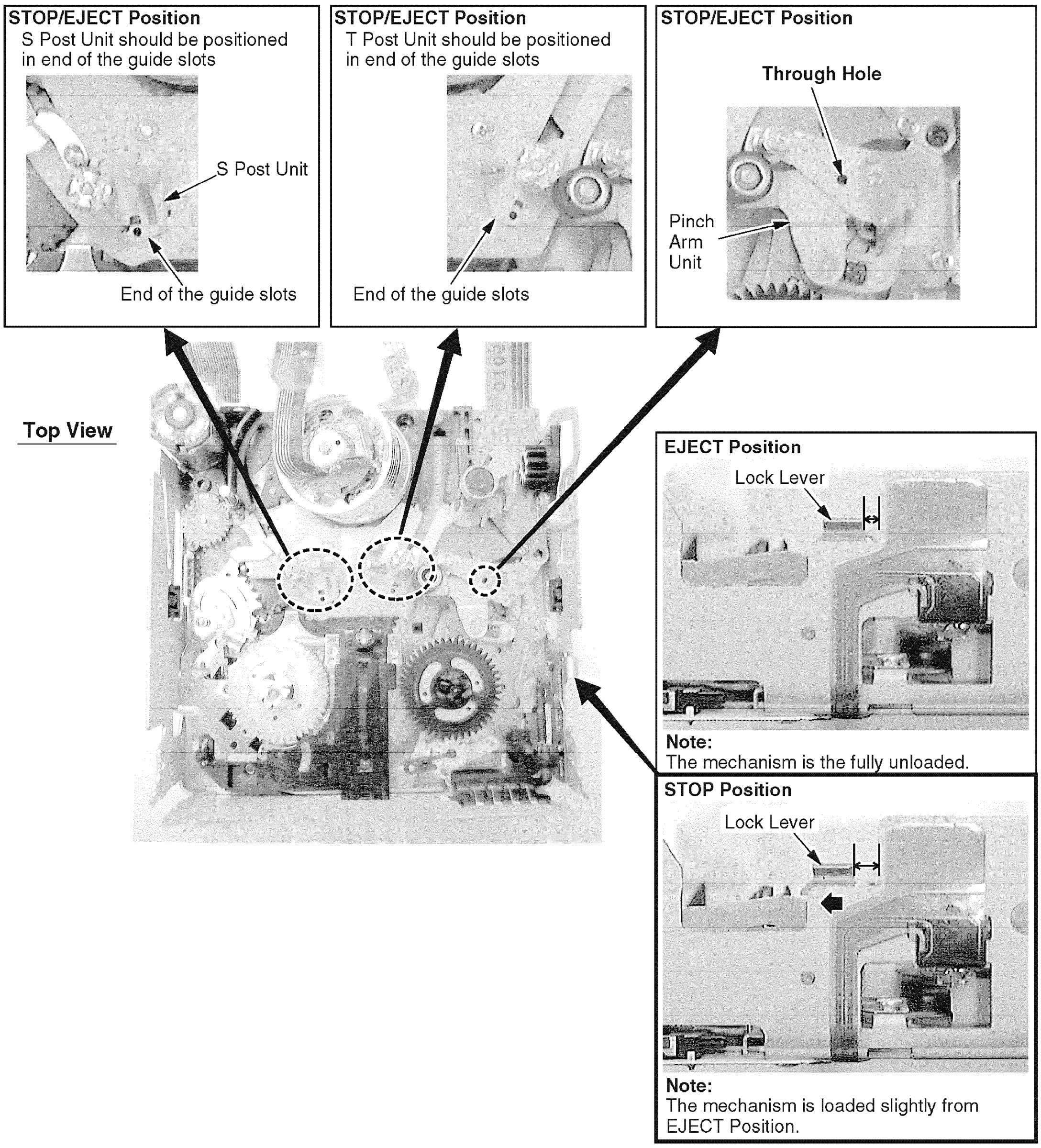

⑧ Mechanism F.P.C. Unit
T Arm Unit ㉓
㉒ S Arm Unit
Timing Belt ㊴
T4 Drive Arm ㊱
㉝ Mode Switch
Drive Pulley ㊲
㉟ Main Plate Unit
MIC Switch ㉞
⑦ DEW Sensor
(For later products)


⑦ DEW Sensor
(For early products)

7.2.2. STOP Position Confirmation

Check the following points to confirm that the Mechanism is in STOP Position from the top side.

Fig. DM2


STOP/EJECT Position
S Post Unit should be positioned in end of the guide slots
S Post Unit
End of the guide slots
STOP/EJECT Position
T Post Unit should be positioned in end of the guide slots
End of the guide slots
STOP/EJECT Position
Through Hole
Pinch Arm Unit
Top View
EJECT Position
Lock Lever
STOP Position
Lock Lever

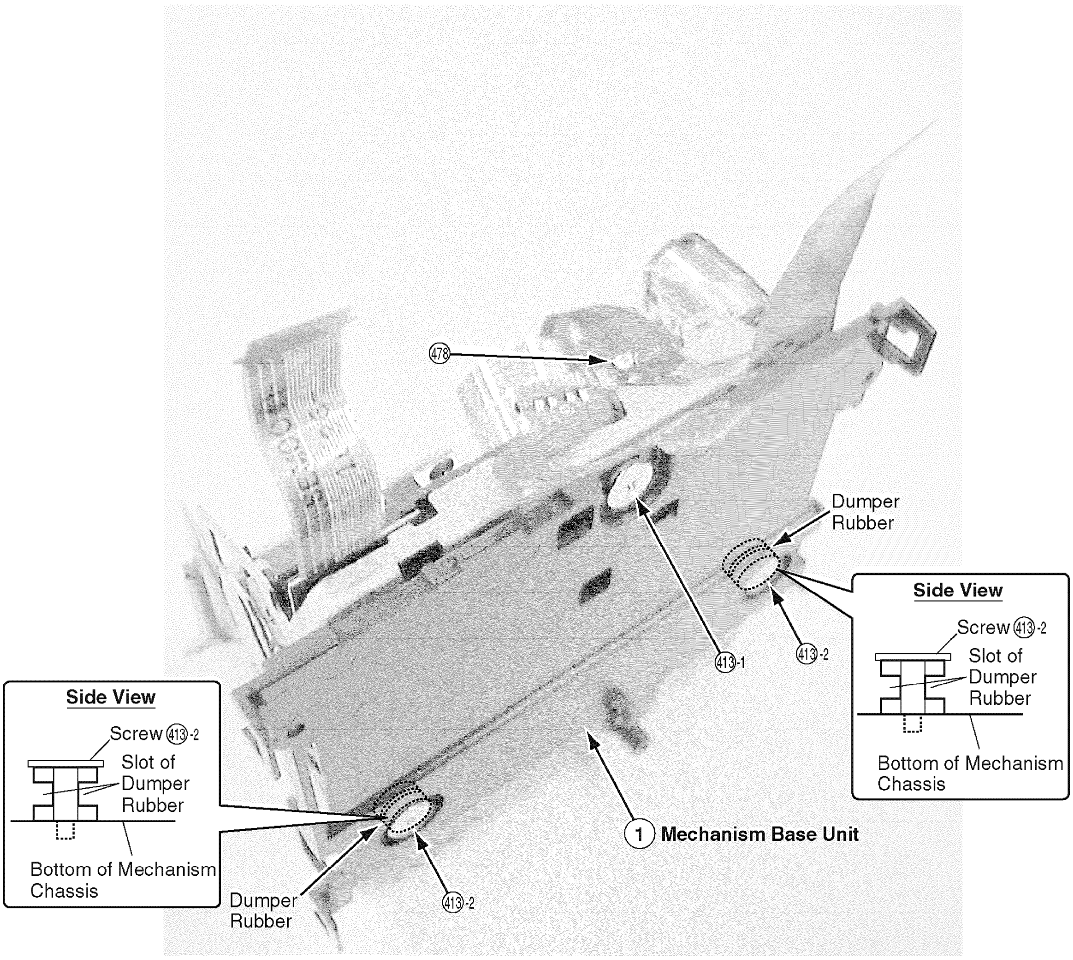
Note:
The mechanism is the fully unloaded.

Note:
The mechanism is loaded slightly from EJECT Position.

Perform all disassembly/reassembly and alignments procedures in STOP Position except disassembly/reassembly and alignment procedures which have the special notes.

7.2.3. Mechanism Base Unit

Fig. DM3


(478)
Dumper Rubber
Side View
Screw (413)-2
Slot of Dumper Rubber
Bottom of Mechanism Chassis
(413)-1
(413)-2
① Mechanism Base Unit
Side View
Screw (413)-2
Slot of Dumper Rubber
Bottom of Mechanism Chassis
Dumper Rubber
(413)-2

Disassembly Notes:

1. Use extreme care when removing the Grounding Plate. Do not touch the Video Heads during servicing.
2. When removing the Grounding Plate from the Mechanism Chassis, turn it as indicated by the arrow.

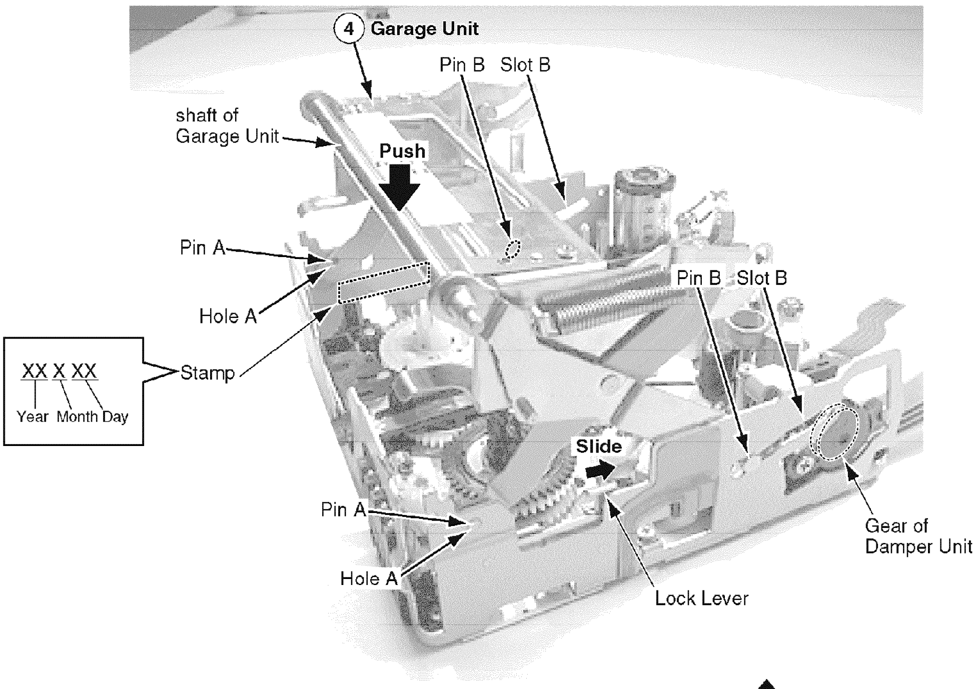
Reassembly Notes:

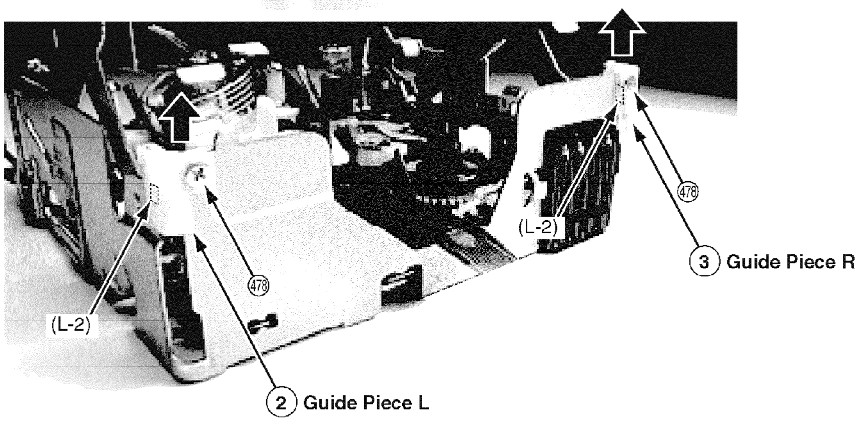
1. **Installation of Mechanism Base Unit**

1) Install the 2 Screws (413)-2 on the Mechanism Chassis.
2) Then, install the Mechanism Base Unit so that it slide to slots of the Dumper Rubber.
3) Then, install a Screw (413)-1.

7.2.4. Guide Piece L, Guide Piece R, Garage Unit

Fig. DM4


④ Garage Unit
Pin B
Slot B
shaft of Garage Unit
Push
Pin A
Hole A
XX X XX
Year Month Day
Stamp
Pin B
Slot B
Slide
Pin A
Hole A
Gear of Damper Unit
Lock Lever


(L-2)
478
③ Guide Piece R
478
(L-2)
② Guide Piece L

Disassembly Notes:

1. Before removing the Garage Unit, eject the Garage Unit by sliding the Lock Lever to the direction of the arrow.
2. When removing the Garage Unit, pull 2 Pin A from 2 Hole A, and then pull 2 Pin B from 2 Slot B.

Reassembly Notes:

1. Installation of Garage Unit

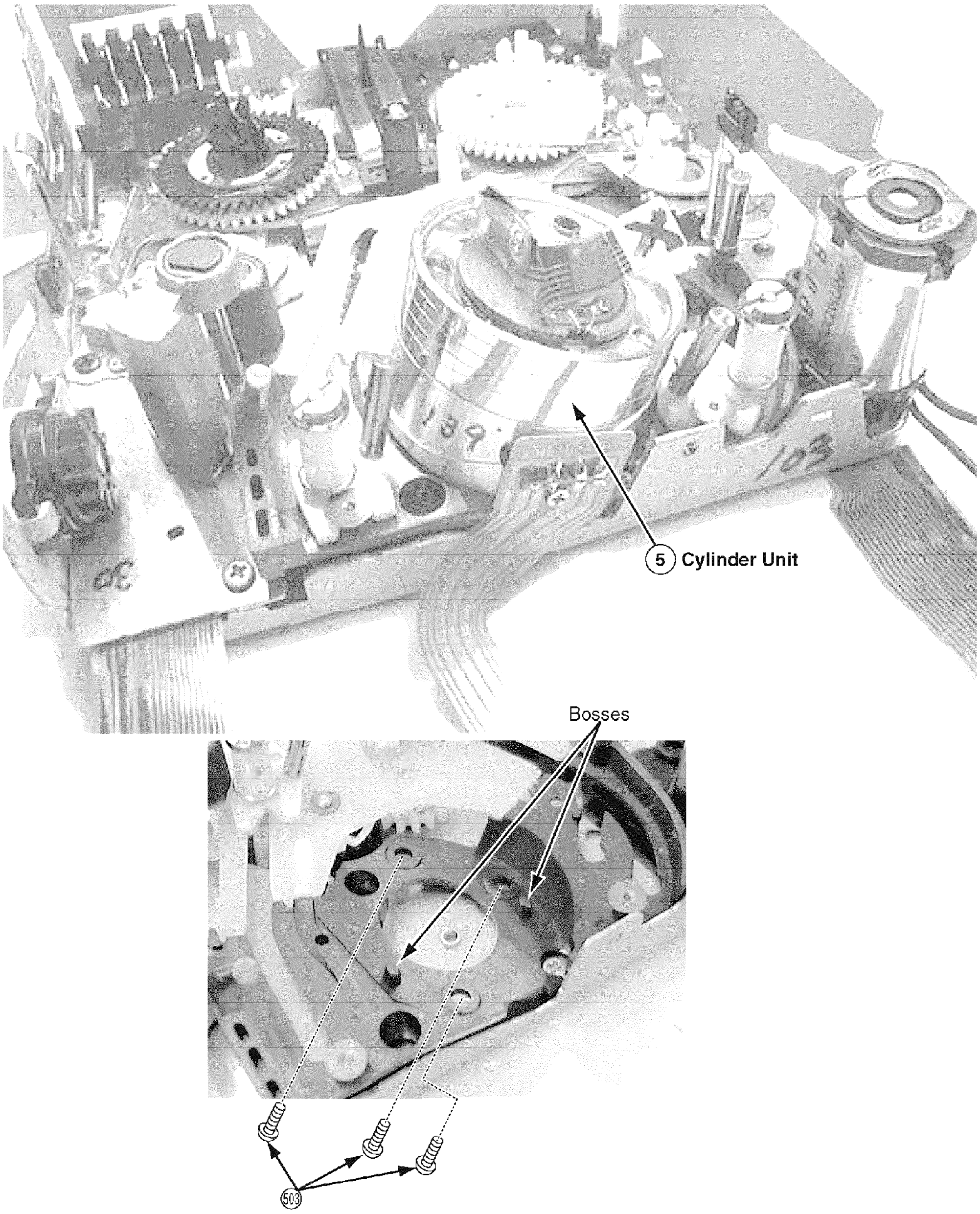
1) Install the Garage Unit so that 2 Pin B of Garage Unit are inserted to 2 Slot B on chassis.
2) Insert the 2 Pin A to 2 Hole A on chassis.

CAUTION:

When making the Garage Unit in the down position, be sure to push the shaft of Garage Unit as shown. Otherwise, the Garage Unit may be damaged.

7.2.5. Cylinder Unit

Fig. DM5



Disassembly Notes:

1. Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing. Use extreme care to handle the Cylinder Unit.

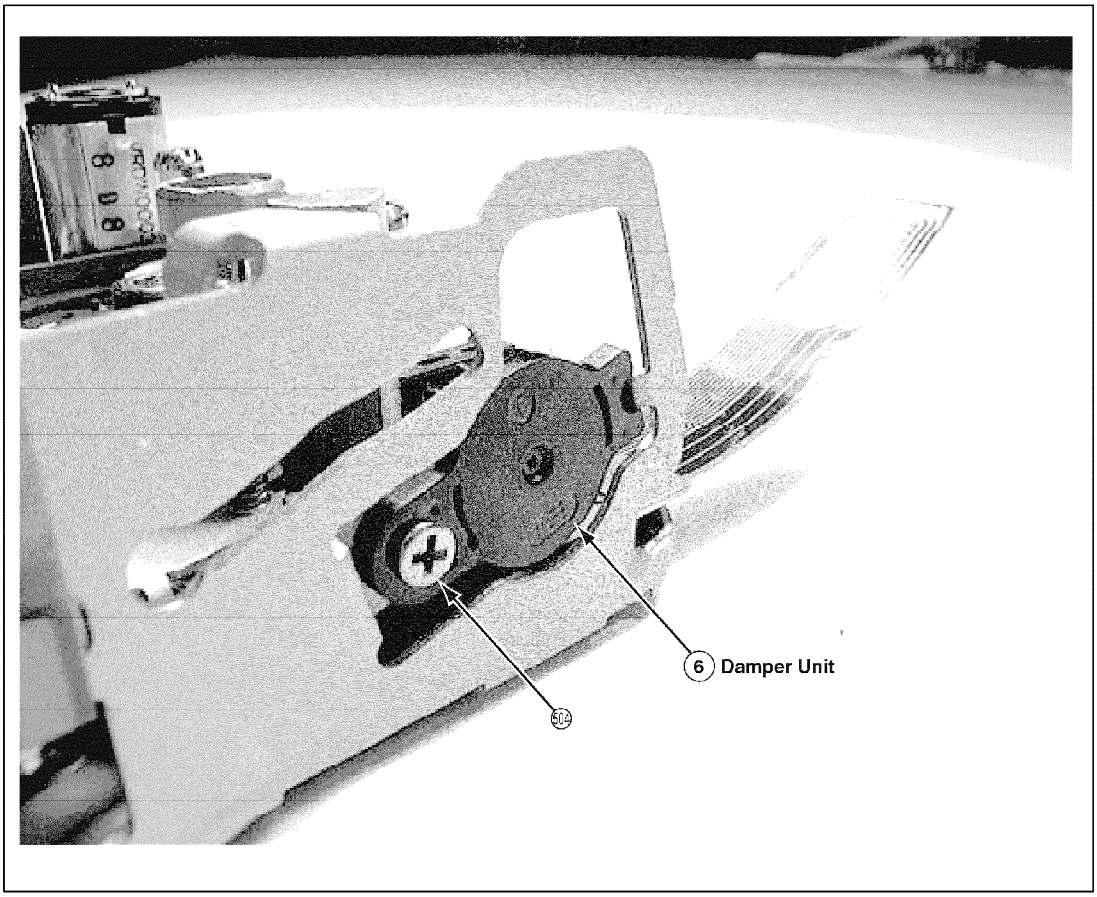
Reassembly Notes:

1. Installation of Cylinder Unit

1) Install the Cylinder Unit so that 2 Holes on the Cylinder Unit surface fit over the 2 Bosses on the Chassis. Then, tighten 3 Screws (503).

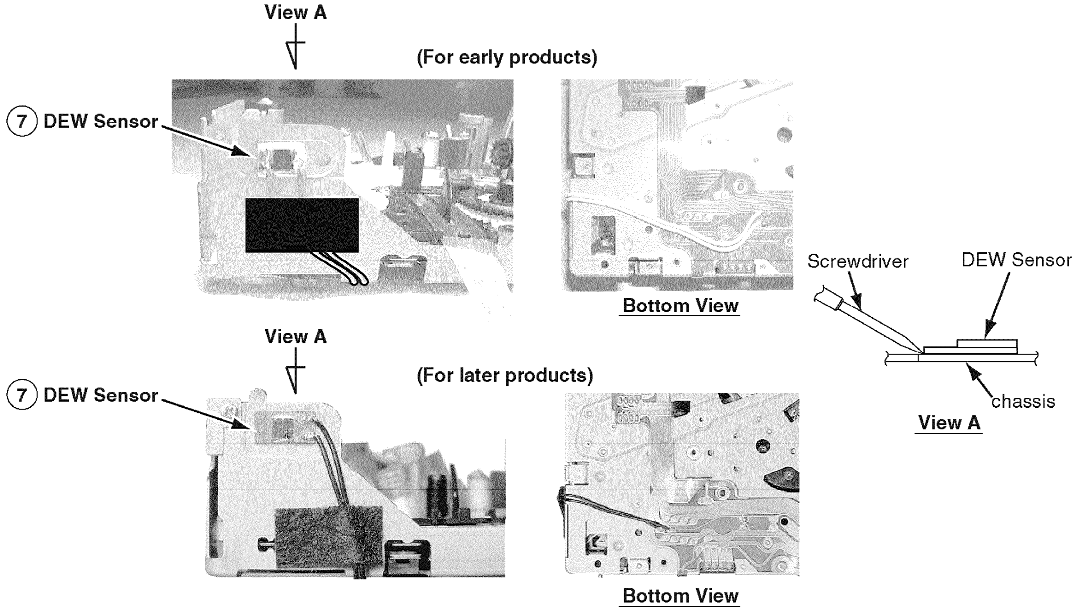
7.2.6. Dumper Unit

Fig. DM6

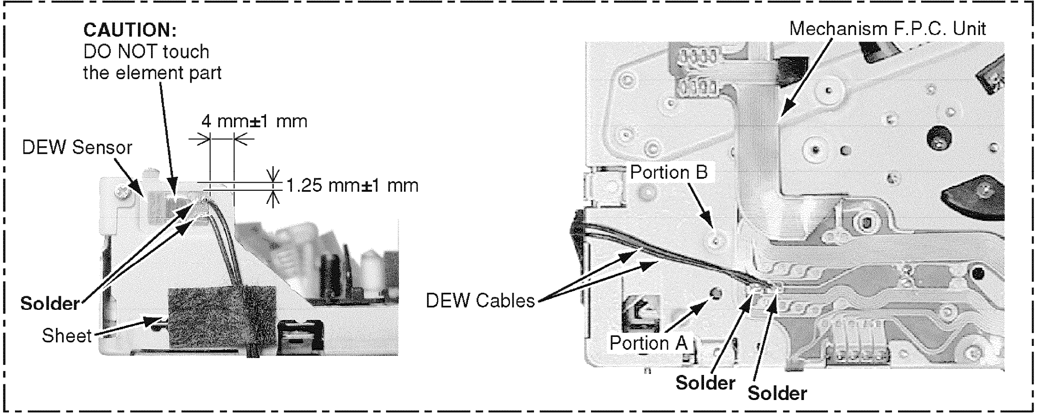

⑥ Damper Unit
(504)

7.2.7. DEW Sensor, DEW Cable

Fig. DM7


View A
(For early products)
⑦ DEW Sensor
Bottom View
Screwdriver
DEW Sensor
chassis
View A
View A
(For later products)
⑦ DEW Sensor
Bottom View

See Reassembly Notes.


CAUTION:
DO NOT touch
the element part
4 mm±1 mm
DEW Sensor
1.25 mm±1 mm
Solder
Sheet
Mechanism F.P.C. Unit
Portion B
DEW Cables
Portion A
Solder
Solder

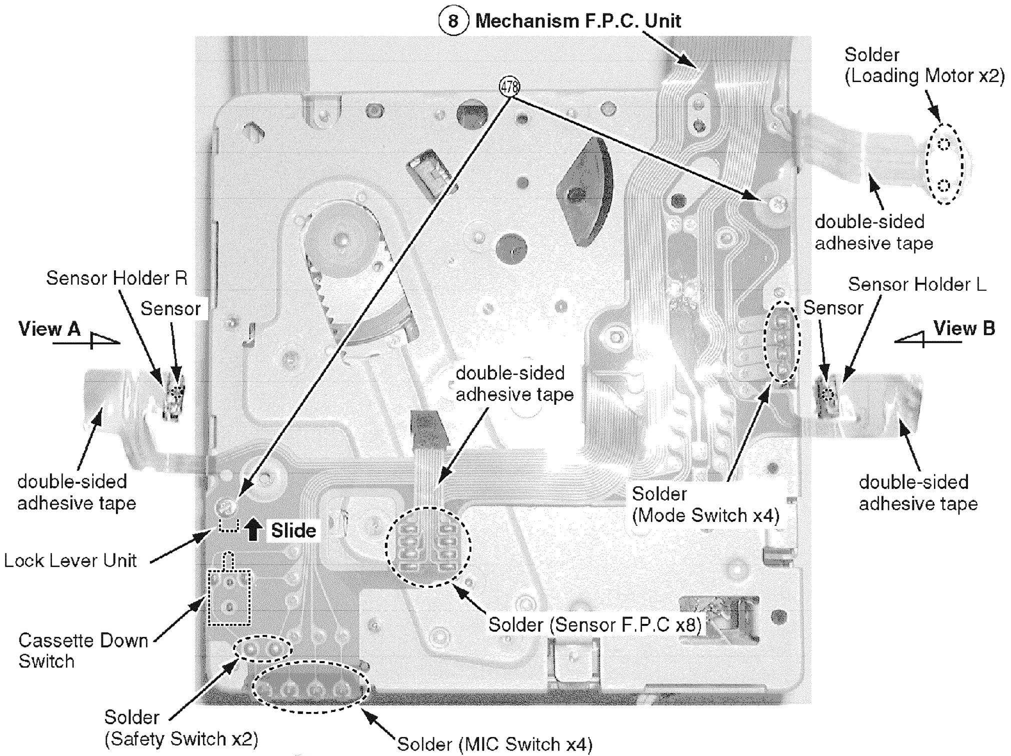
Disassembly Notes:
1. When removing the DEW Sensor, remove it using a screwdriver etc. as shown.

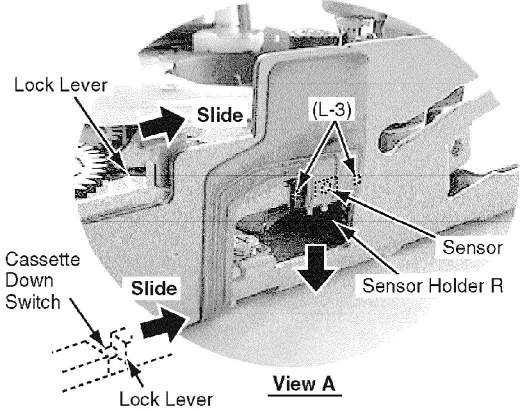
Reassembly Notes:
1. Installation of DEW Sensor, DEW Cables
The DEW Sensor or the DEW Cables is supplied separately as replacement parts. When replacing the DEW Sensor **in early products**, be sure to replace both the DEW Sensor and the DEW Cables.
DO NOT touch the element part on DEW Sensor when installing it.

1) Put the DEW Sensor on chassis with adhesive securely, and solder the DEW Cables on the DEW Sensor as shown.
2) Shape the DEW Cables between Portion A and Portion B on the bottom of Mechanism. Then, solder it on the Mechanism F.P.C. Unit no more than 320 °C for less than 3 seconds as shown.

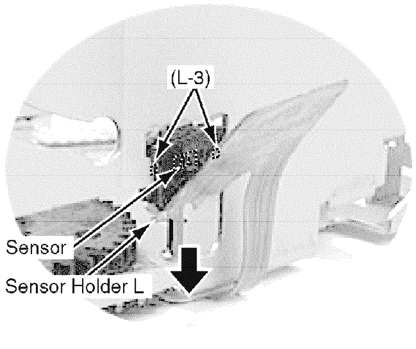
7.2.8. Mechanism F.P.C. Unit

Fig. DM8


⑧ Mechanism F.P.C. Unit
478
Solder
(Loading Motor x2)
double-sided
adhesive tape
Sensor Holder R
Sensor
View A
Sensor Holder L
Sensor
View B
double-sided
adhesive tape
double-sided
adhesive tape
double-sided
adhesive tape
Solder
(Mode Switch x4)
Slide
Lock Lever Unit
Cassette Down
Switch
Solder (Sensor F.P.C x8)
Solder
(Safety Switch x2)
Solder (MIC Switch x4)


Lock Lever
Slide
(L-3)
Sensor
Sensor Holder R
Cassette
Down
Switch
Slide
Lock Lever

View A


(L-3)
Sensor
Sensor Holder L

View B

Disassembly Notes:

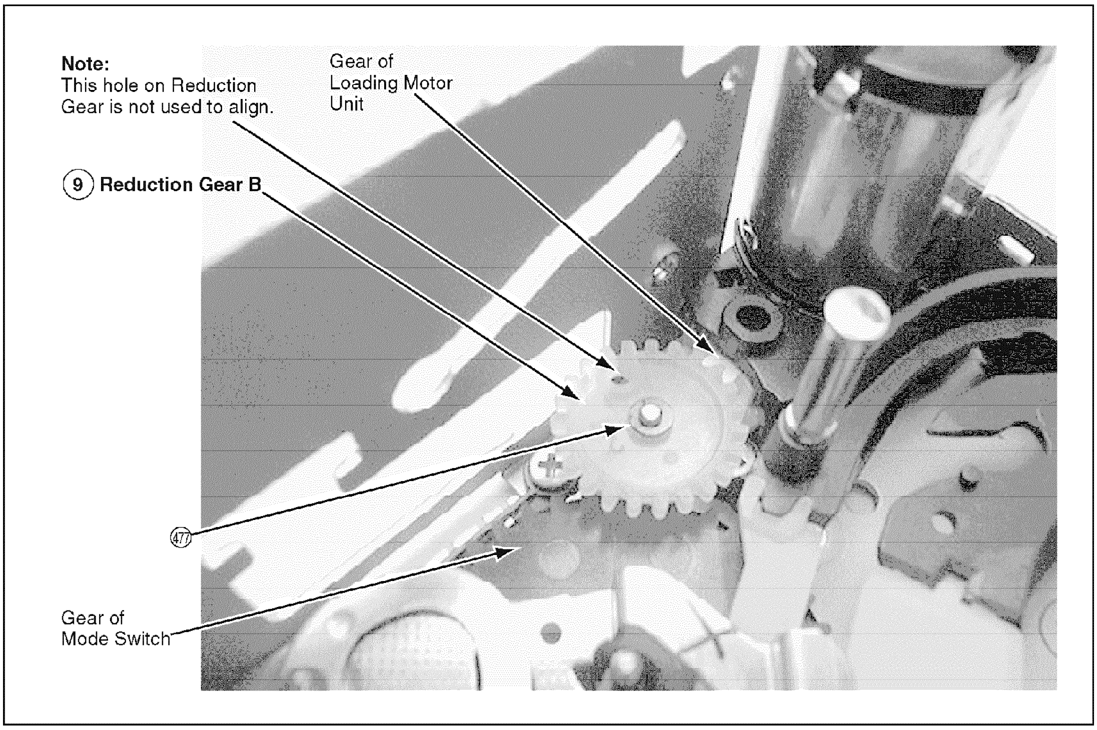
1. DO NOT touch the Sensor on Sensor Holder Unit when removing.
2. When removing the Sensor Holder L & R, slide the Sensor Holder Unit as indicated by the arrow while releasing the 4 Locking Tabs (L-3).

Reassembly Notes:

1. Before installing the Mechanism F.P.C. Unit, confirm that the Lock Lever is slid as indicated by the arrow and held as shown. Otherwise, the Lock Lever may damage the Cassette Down Switch.
2. Solder the points on Sensor F.P.C. x8, MIC Switch x4, Mode Switch x4, Safety Switch x2, and Loading Motor x2 no more than 310 °C for less than 2 seconds when soldering.
3. When installing the Mechanism F.P.C. Unit, secure the Sensor Holder L & R with the 4 Locking Tabs (L-3), and then put with double-sided adhesive tape.

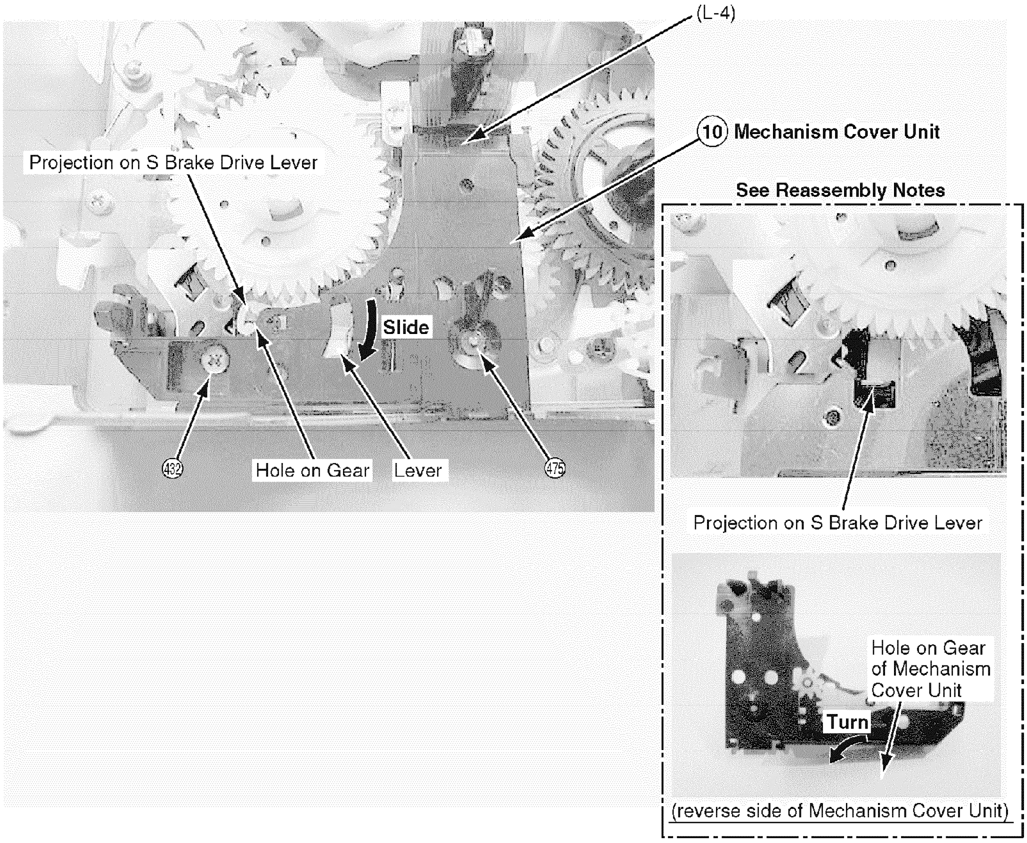
7.2.9. Reduction Gear B

Fig. DM9


Note:
This hole on Reduction Gear is not used to align.
Gear of Loading Motor Unit
⑨ **Reduction Gear B**
477
Gear of Mode Switch

7.2.10. Mechanism Cover Unit

Fig. DM10


(L-4)
⑩ Mechanism Cover Unit
See Reassembly Notes
Projection on S Brake Drive Lever
Slide
(432)
Hole on Gear
Lever
(475)
Projection on S Brake Drive Lever
Hole on Gear of Mechanism Cover Unit
Turn
(reverse side of Mechanism Cover Unit)

Disassembly Notes:

1. Before removing, slide the Lever as indicated by the arrow as shown.

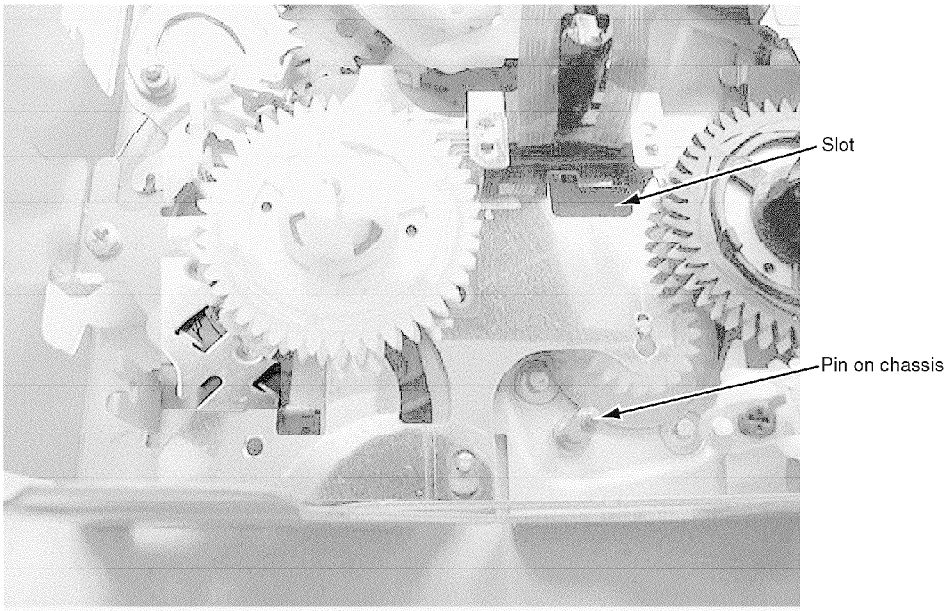
Reassembly Notes:

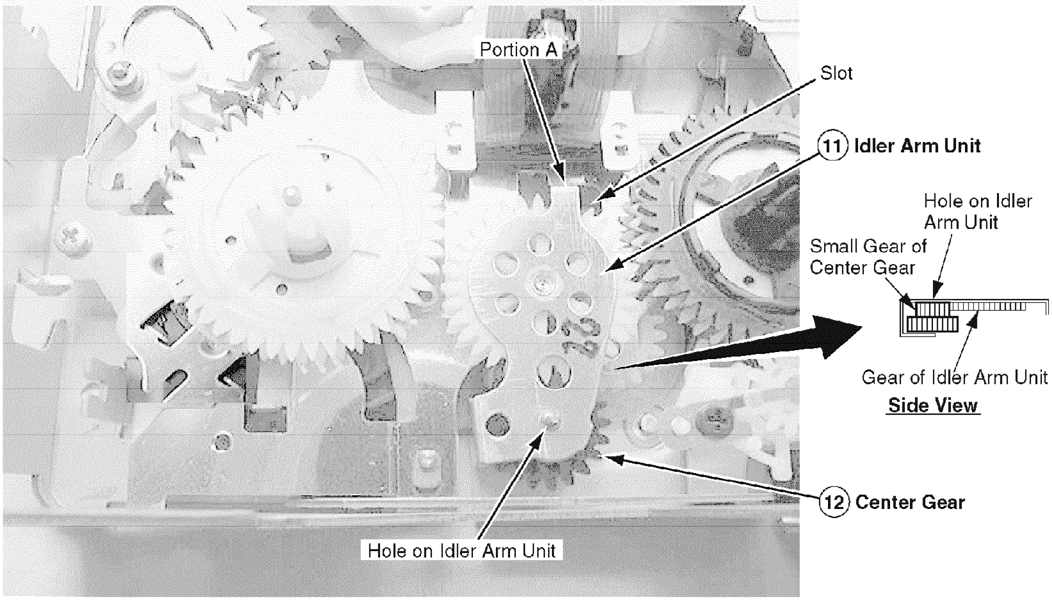
1. Installation of Mechanism Cover Unit

1) Before installing, place the Mechanism in STOP Position by rotating the Mode Switch.
2) Turn the Gear on reverse side of Mechanism Cover Unit counterclockwise as shown.
3) Install the Mechanism Cover Unit so that the Projection on S Brake Drive Lever inserts to Hole on Gear of Mechanism Cover Unit.

7.2.11. Idler Arm Unit, Center Gear

Fig. DM11


Slot
Pin on chassis


Portion A
Slot
⑪ Idler Arm Unit
Hole on Idler Arm Unit
Small Gear of Center Gear
Gear of Idler Arm Unit
Side View
⑫ Center Gear
Hole on Idler Arm Unit

Disassembly Notes:

1. When removing the Idler Arm Unit, remove both of Idler Arm Unit and Center Gear together.

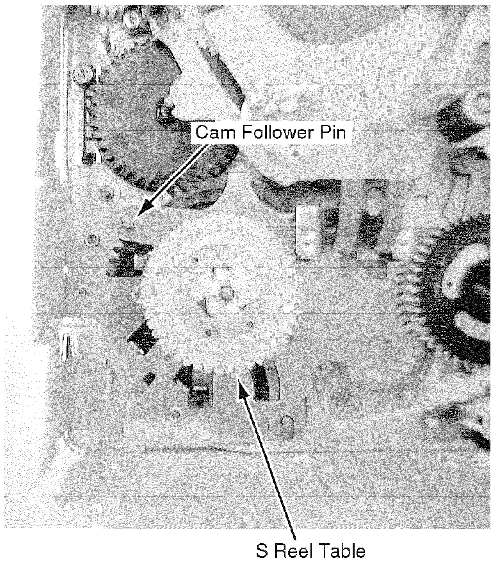
Reassembly Notes:

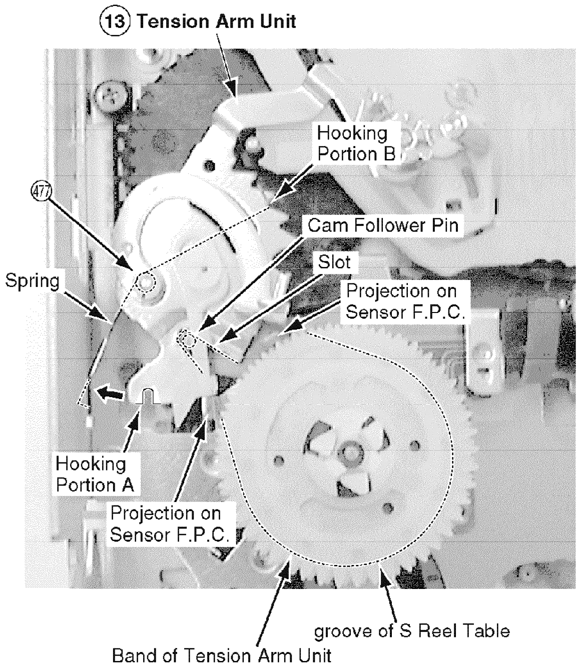
1. Installation of Idler Arm Unit and Center Gear

1) Set the Center Gear into Idler Arm Unit so that Hole on Idler Arm Unit are Through Holes. Confirm that the Small Gear of Center Gear engages with Gear of Idler Arm Unit.
2) Install Both of them together so that Pin on chassis is inserted to Hole on Idler Arm Unit, and Portion A is in Slot.

7.2.12. Tension Arm Unit

Fig. DM12


Cam Follower Pin
S Reel Table


⑬ Tension Arm Unit
Hooking Portion B
477
Cam Follower Pin
Slot
Spring
Projection on Sensor F.P.C.
Hooking Portion A
Projection on Sensor F.P.C.
groove of S Reel Table
Band of Tension Arm Unit

Disassembly Notes:

1. Work carefully so as not to damage the Band of Tension Arm Unit when removing.

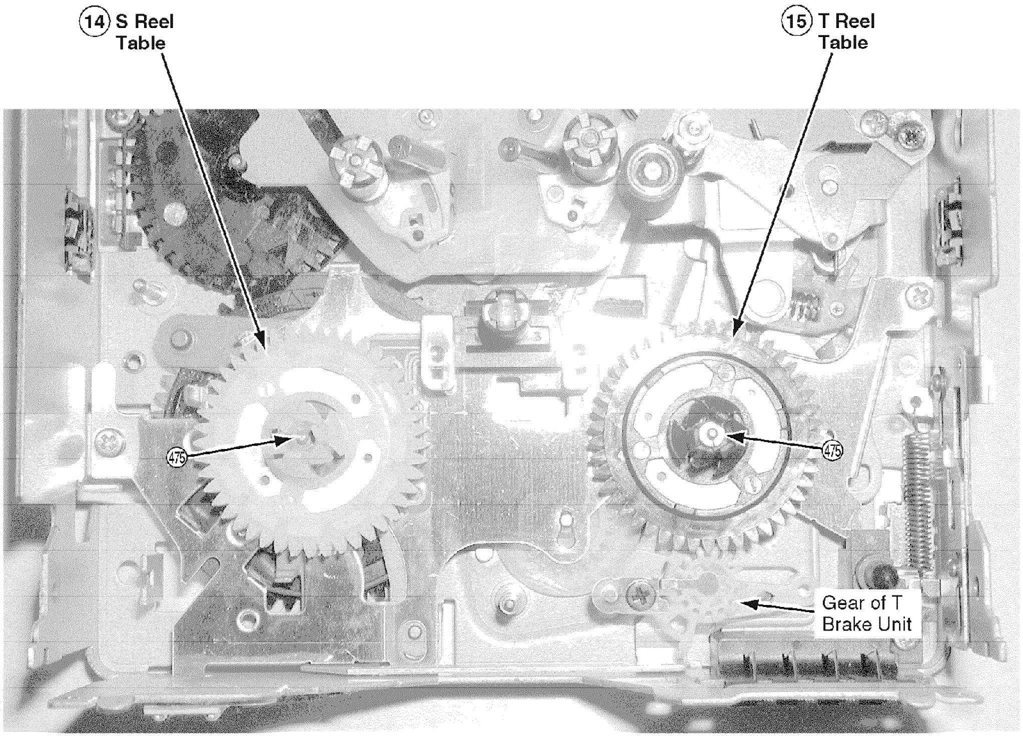
Reassembly Notes:

1. Installation of Tension Arm Unit

1) Before installing the Tension Arm Unit, place the Mechanism in STOP Position by rotating the Mode Switch, and then hook the Spring of Tension Arm Unit to Hooking Portion A and Hooking Portion B.
2) Install the Tension Arm Unit while hooking the Band of Tension Unit to groove of S Reel Table.
3) Confirm that Band of Tension Arm Unit and Projection on Sensor F.P.C. are in the correct position, and that Cam follower Pin is set into Slot of Tension Arm Unit.
4) After installing the Tension Arm Unit, unhook the Spring from Portion A, and then confirm that the Spring is in the lower position than Sensor F.P.C.

7.2.13. S Reel Table, T Reel Table

Fig. DM13


⑭ S Reel Table
⑮ T Reel Table
475
475
Gear of T Brake Unit

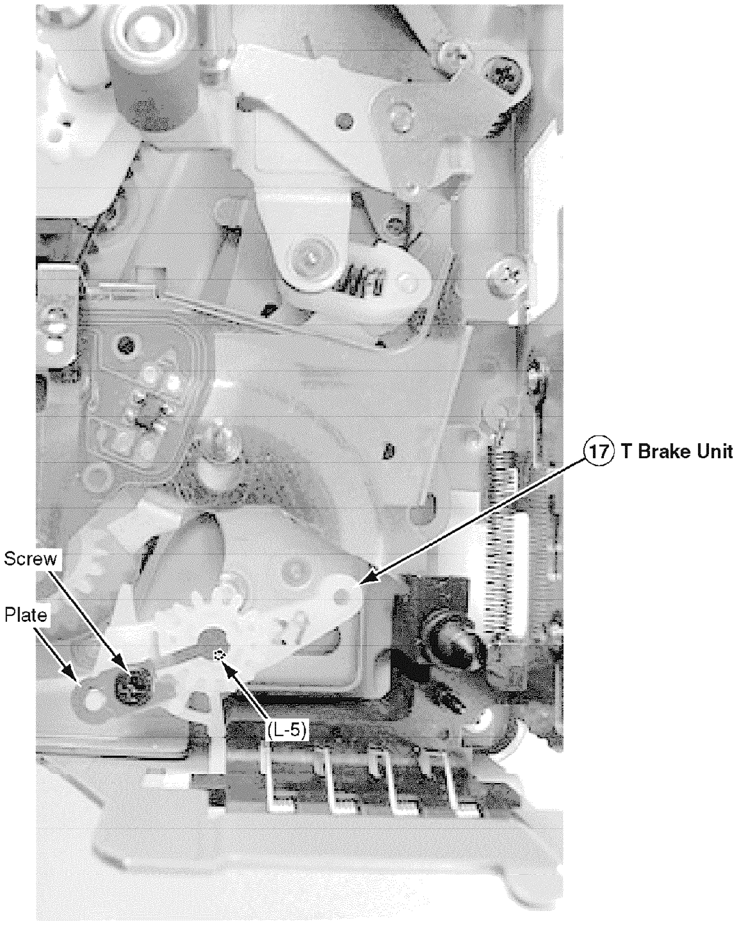
Reassembly Notes:

1. Installation of S Reel Table and T Reel Table

1) Confirm that the Gear of T Reel Table engages with the Gear of T Brake Unit.

7.2.14. T Break Unit

Fig. DM15



Disassembly Notes:

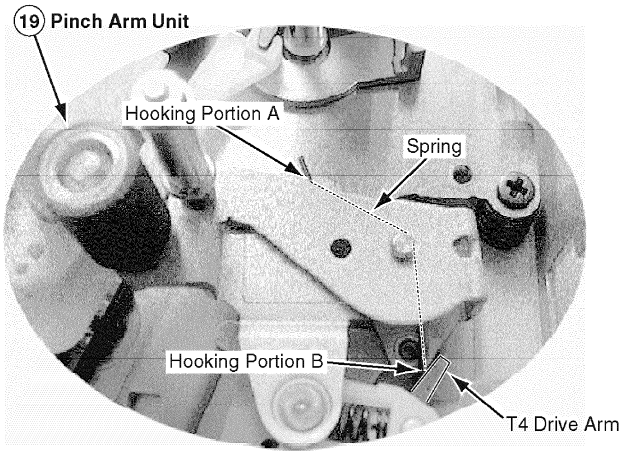
1. When removing the T Brake Unit, remove a Screw and the Plate. Then, remove the T Brake Unit while releasing the Locking Tab (L-5).
2. Use extreme care when removing the T Brake Unit.
   If Locking Tab (L-5) is broken, install a new T Brake Unit.

Reassembly Notes:

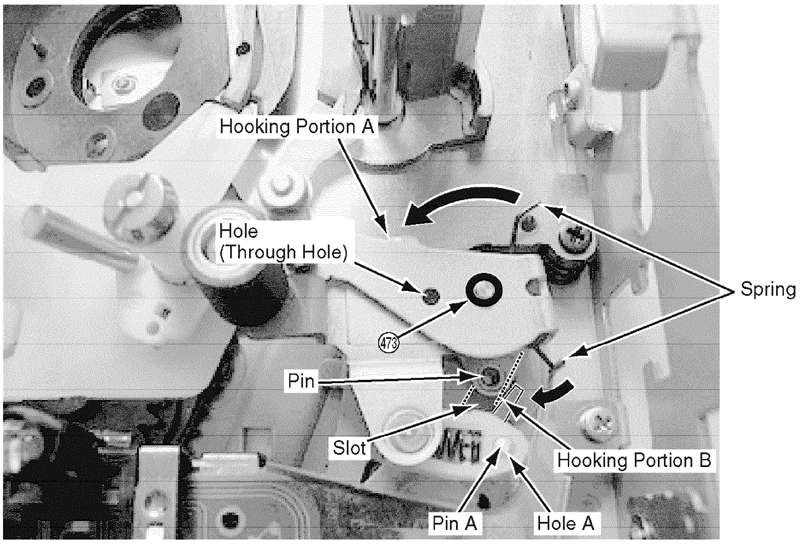
1. When installing the T Brake Unit, DO NOT apply pressure to T Brake Unit Plate.

7.2.15. Pinch Arm Unit

Fig. DM16


19 Pinch Arm Unit
Hooking Portion A
Spring
Hooking Portion B
T4 Drive Arm

See Reassemly Notes.


Hooking Portion A
Hole
(Through Hole)
473
Spring
Pin
Slot
Hooking Portion B
Pin A
Hole A

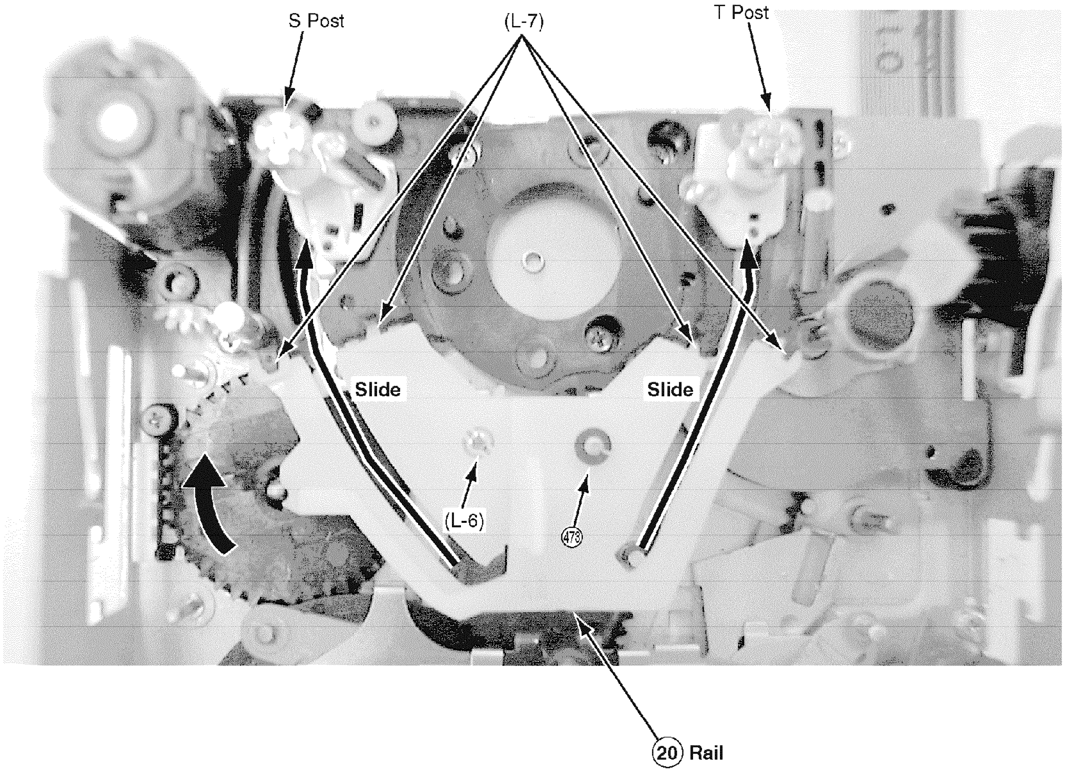
Reassembly Notes:

1. Installation of Pinch Arm Unit

1) Before installing, place the Mechanism in STOP Position by rotating the Mode Switch counterclockwise fully.
2) Install the Pinch Arm Unit so that Pin of Pinch Arm Unit is in Slot and that Pin A is inserted to Hole A on Pinch Arm Unit. (The holes on Pinch Arm Unit are Through Hole.)
3) Hook the Spring to Hooking Portion A, and then to Hooking Portion B of T4 Drive Arm.

7.2.16. Rail

Fig. DM17


S Post
(L-7)
T Post
Slide
Slide
(L-6)
473
20 Rail

Disassembly Notes:

1. Before removing the Rail, slide the S & T Posts by rotating the Mode Switch clockwise.
2. When removing the Rail, release the Locking Tab (L-6) first so as not to damage the 4 Locking Tabs (L-7).

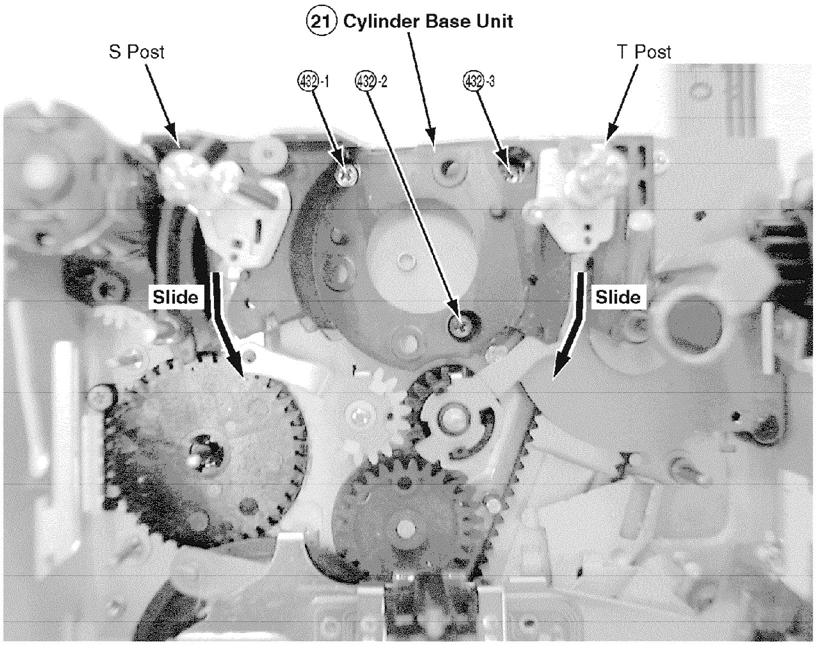
Reassembly Notes:

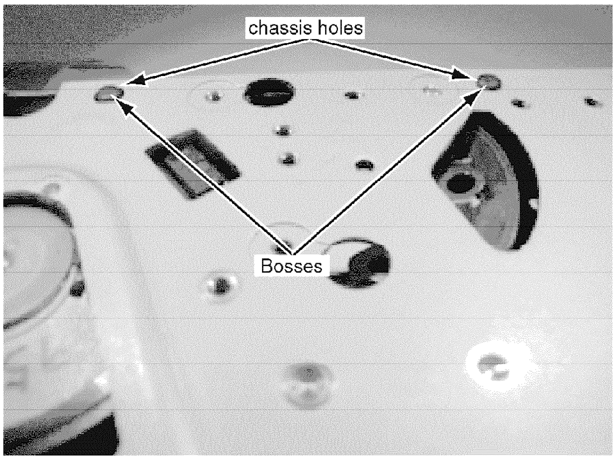
1. Installation of Rail

1) Set 4 Locking Tabs (L-7), and then push down the Rail to set Locking Tab (L-6) firmly.

7.2.17. Cylinder Base Unit

Fig. DM18


㉑ Cylinder Base Unit
S Post
T Post
(432)-1
(432)-2
(432)-3
Slide
Slide


chassis holes
Bosses

Disassembly Notes:

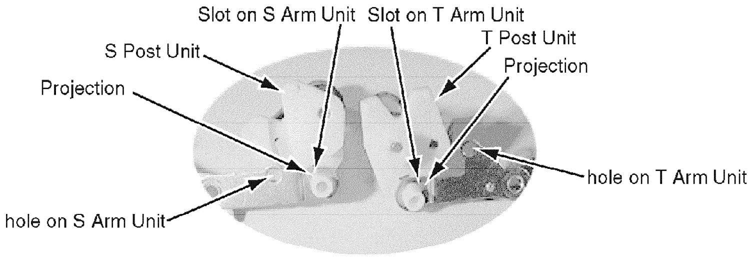
1. Slide the S & T Posts as indicated by the arrow.

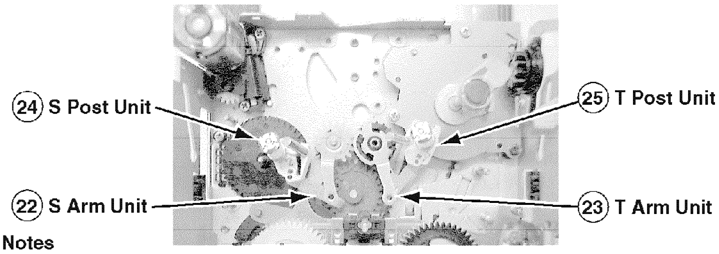
Reassembly Notes:

1. Before installing the Cylinder Base Unit, confirm that the S & T Posts are lowered.
2. When installing, tighten 3 Screws (432)-1, (432)-2 and (432)-3 in order.
3. After installing, slide the S & T Posts to insert the groove of Cylinder Base Unit.

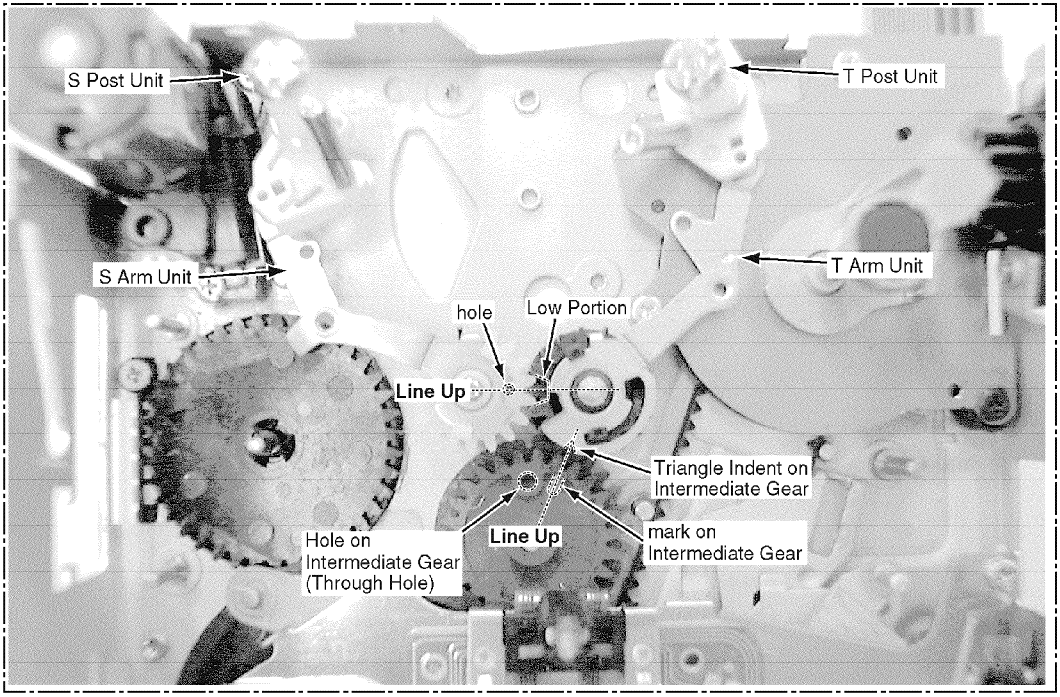
7.2.18. S & T Arm Unit, S & T Post Unit

Fig. DM19


Slot on S Arm Unit
Slot on T Arm Unit
S Post Unit
T Post Unit
Projection
Projection
hole on T Arm Unit
hole on S Arm Unit


㉔ S Post Unit
㉕ T Post Unit
㉒ S Arm Unit
㉓ T Arm Unit

See Reassembly Notes


S Post Unit
T Post Unit
S Arm Unit
T Arm Unit
hole
Low Portion
Line Up
Triangle Indent on Intermediate Gear
Hole on Intermediate Gear (Through Hole)
Line Up
mark on Intermediate Gear

Disassembly Notes:

1. When removing the S & T Post Unit, pass the Projections from each slots on S & T Arm Unit.

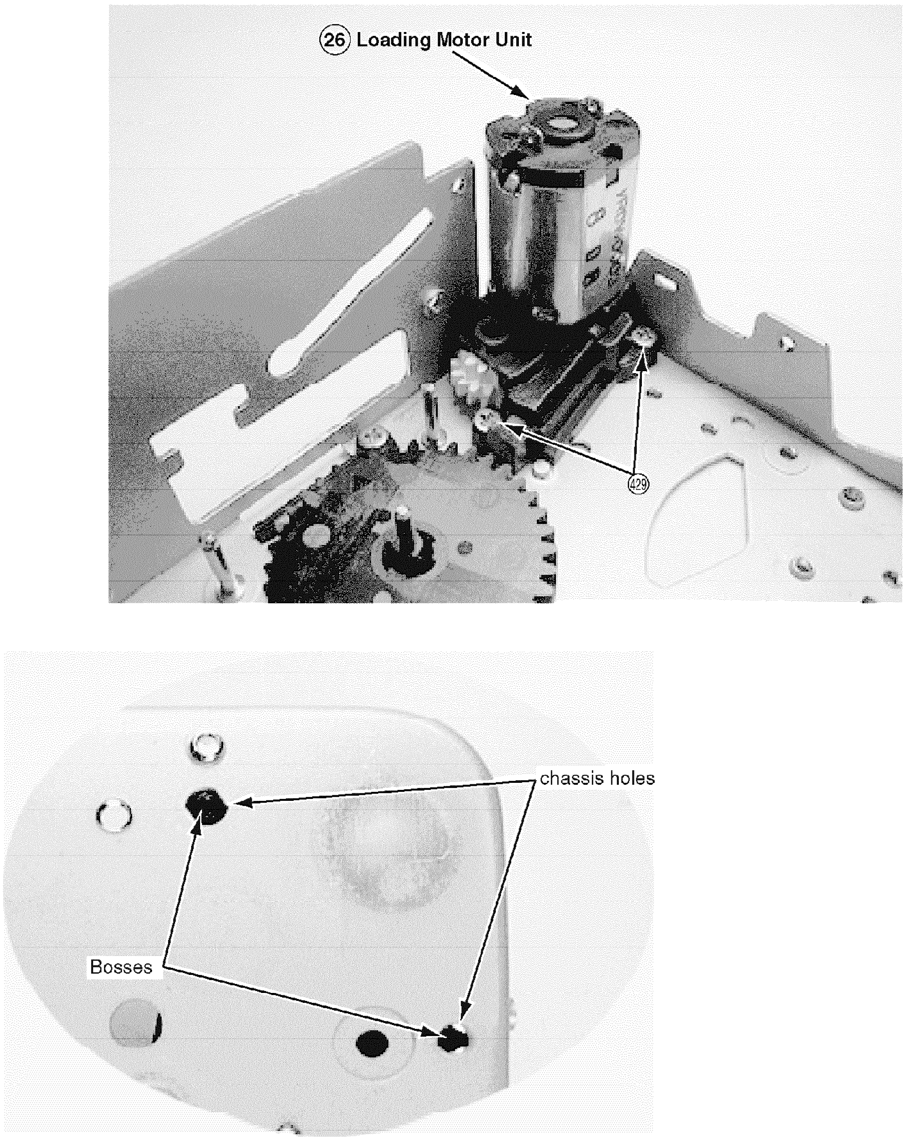
Reassembly Note:

1. Alignment/Installation of S & T Post Unit, S & T Arm Unit

1) Install the S Arm Unit to the S Post Unit while passing the Projection.
2) Install the T Arm Unit to the T Post Unit while passing the Projection.
3) Confirm that the hole on Intermediate Gear is aligned with the hole on chassis (Through Hole).
4) Install both the T Post Unit and the T Arm Unit so that the Triangle Indent on T Arm Unit is aligned with the mark on Intermediate Gear.
5) Install both the S Post Unit and the S Arm Unit so that the hole on the S Arm Unit is aligned with Low Portion of T Arm Unit.

7.2.19. Loading Motor Unit

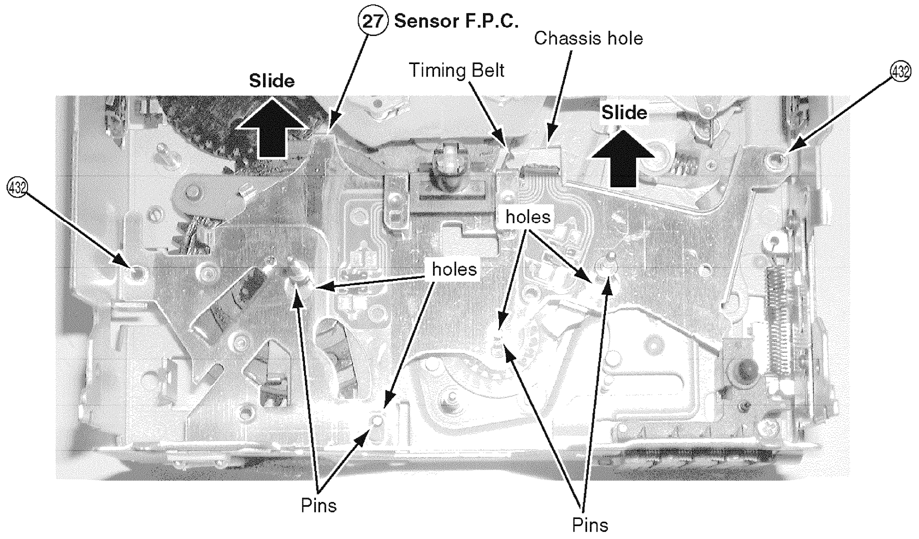
Fig. DM20



㉖ Loading Motor Unit
429
chassis holes
Bosses

7.2.20. Sensor F.P.C.

Fig. DM21


(27) Sensor F.P.C.
Chassis hole
Timing Belt
Slide
(432)
Slide
(432)
holes
holes
Pins
Pins

Disassembly Notes:
1. When removing the Sensor F.P.C., slide it as indicated by the arrow.
2. Work carefully so as not to damage the F.P.C. when removing it.

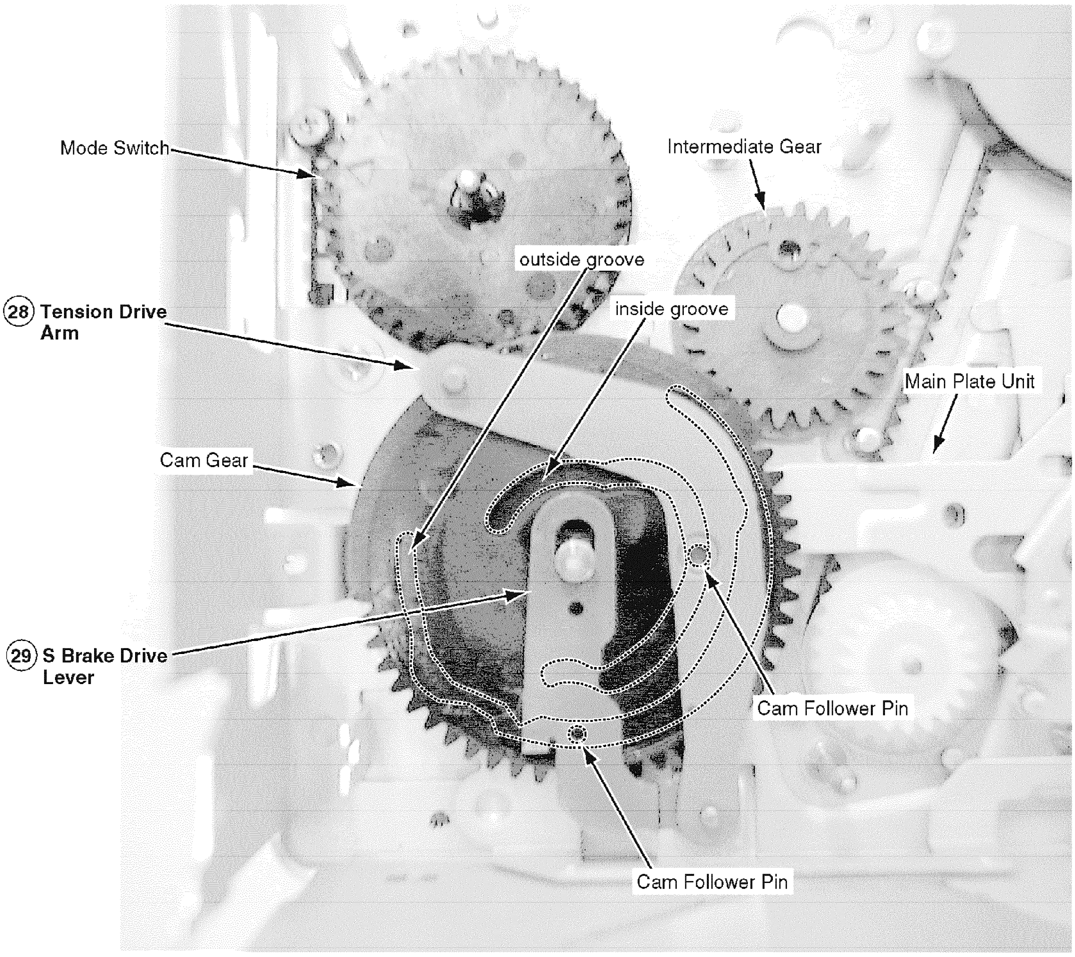
Reassembly Notes:

1. Installation of Sensor F.P.C.

1) Install the Sensor F.P.C. so that the Pins on chassis are in the holes on the Sensor F.P.C.
2) Slide the Sensor F.P.C., and then tighten 2 Screws (432).
3) Put the F.P.C. through the Chassis hole, and confirm that there is no contact between the Timing Belt and the F.P.C.

7.2.21. Tension Drive Arm, S Brake Drive Lever

Fig. DM22


Mode Switch
Intermediate Gear
outside groove
inside groove
㉘ Tension Drive Arm
Main Plate Unit
Cam Gear
㉙ S Brake Drive Lever
Cam Follower Pin
Cam Follower Pin

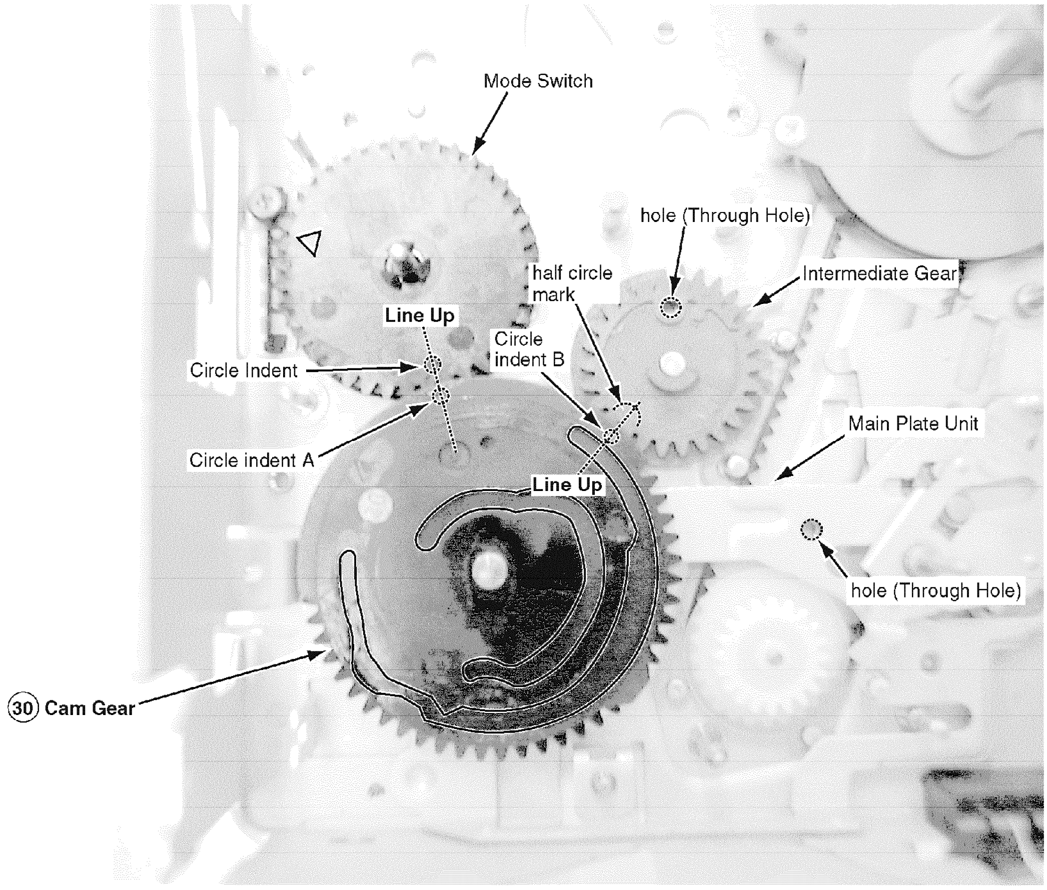
Reassembly Notes:

1. Installation of S Brake Drive Lever, Tension Drive Arm

1) Confirm that the Intermediate Gear, Main Plate Unit, Mode Switch, and Cam Gear are in proper position. Refer to "Cam Gear."
2) Install the S Brake Drive Lever so that the Cam Follower Pin on S Brake Drive Lever is inserted to outside groove on the Cam Gear.
3) Install the Tension Drive Arm so that the Cam Follower Pin on Tension Drive Arm is inserted to inside groove on the Cam Gear.

7.2.22. Cam Gear

Fig. DM23


Mode Switch
hole (Through Hole)
half circle mark
Intermediate Gear
Line Up
Circle indent B
Circle Indent
Main Plate Unit
Circle indent A
Line Up
hole (Through Hole)
(30) Cam Gear

Reassembly Notes:

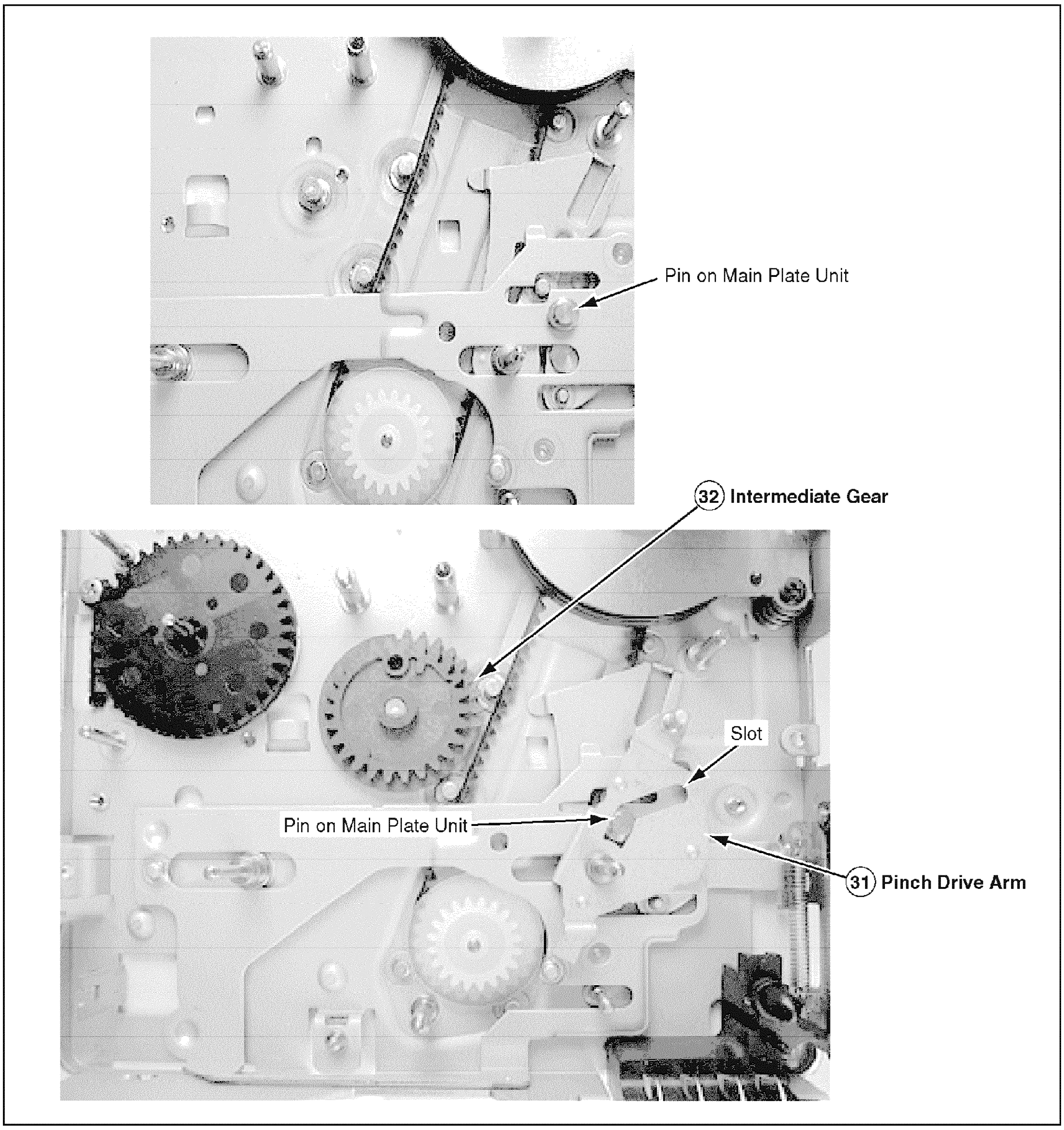
1. Alignment of Intermediate Gear, Main Plate Unit, Mode Switch, Cam Gear

1) Before installing the Cam Gear, align the hole on Intermediate Gear with hole on chassis (Through Hole), and then, align the hole on the Main Plate Unit with hole on chassis (Through Hole).

2) Install the Cam Gear so that Circle indent A on Cam Gear is aligned with Circle Indent on Mode Switch, and the Circle indent B on Cam Gear is aligned with half circle mark on Intermediate Gear.

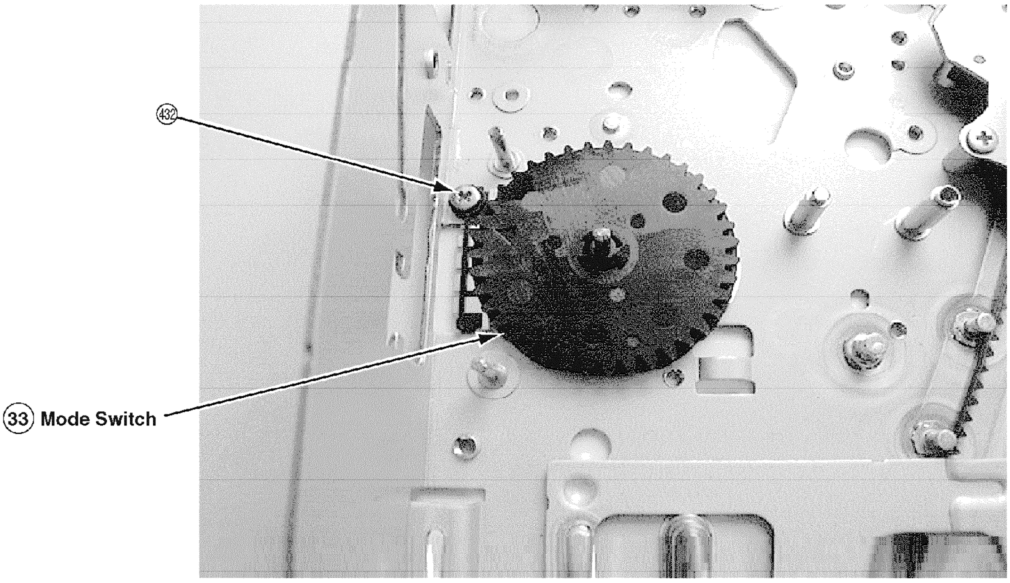
7.2.23. Pinch Drive Arm, Intermediate Gear

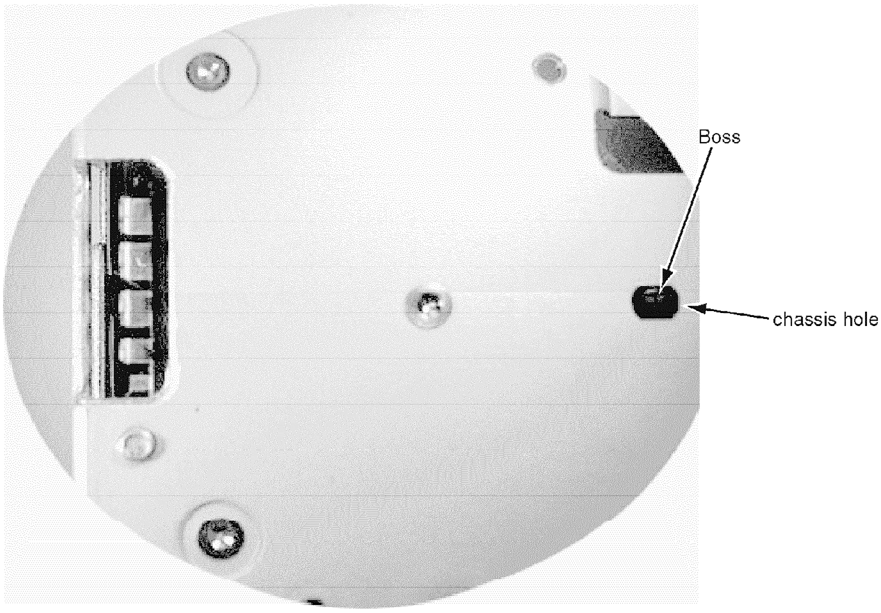
Fig. DM24


Pin on Main Plate Unit
32 Intermediate Gear
Slot
Pin on Main Plate Unit
31 Pinch Drive Arm

7.2.24. Mode Switch

Fig. DM25


(432)
㉝ Mode Switch

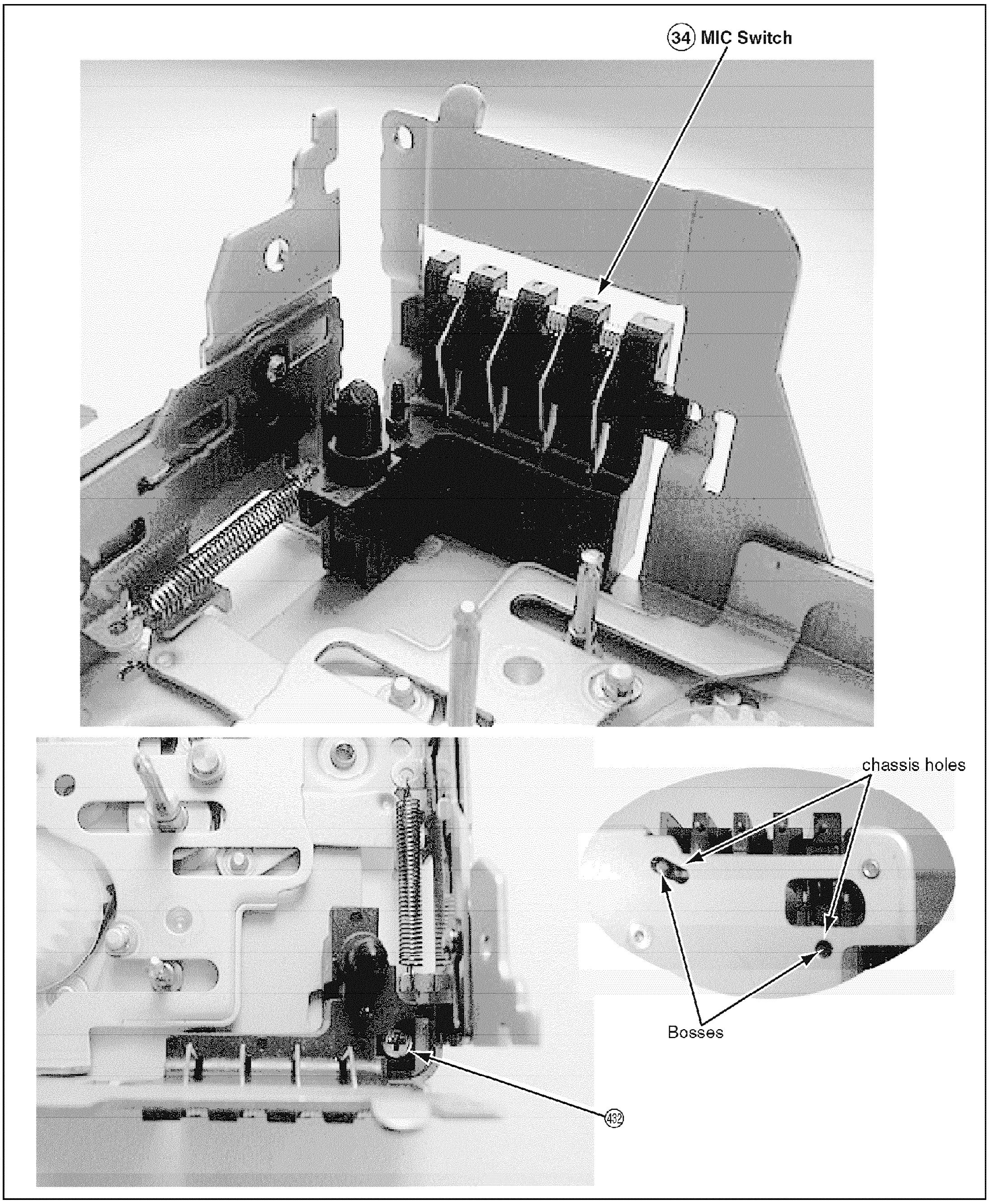

Boss
chassis hole

Reassembly Notes:

1. When installing the Mode Switch, install the Mode Switch without tottering

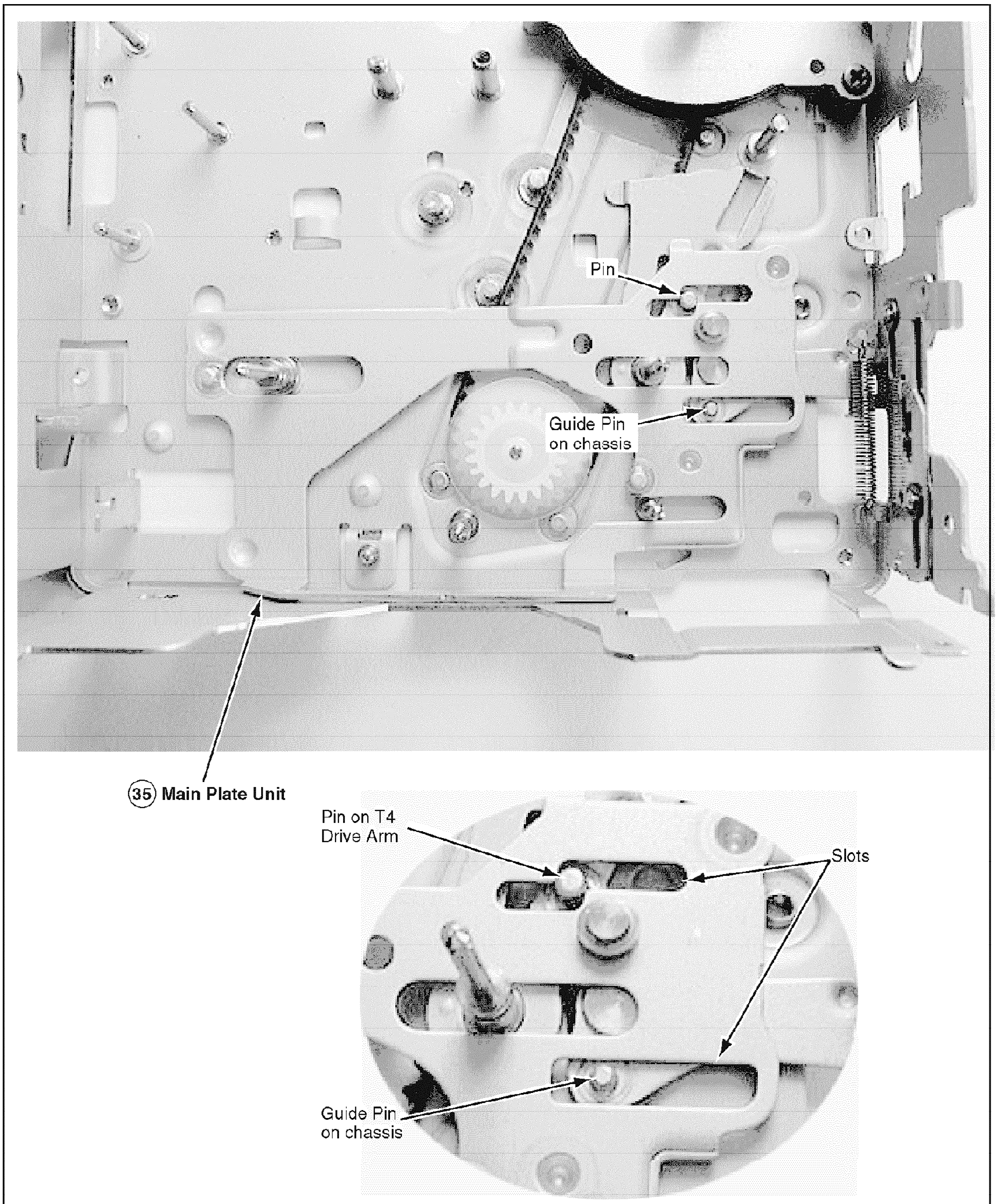
7.2.25. MIC Switch

Fig. DM26


㉞ MIC Switch
chassis holes
Bosses
(432)

7.2.26. Main Plate Unit

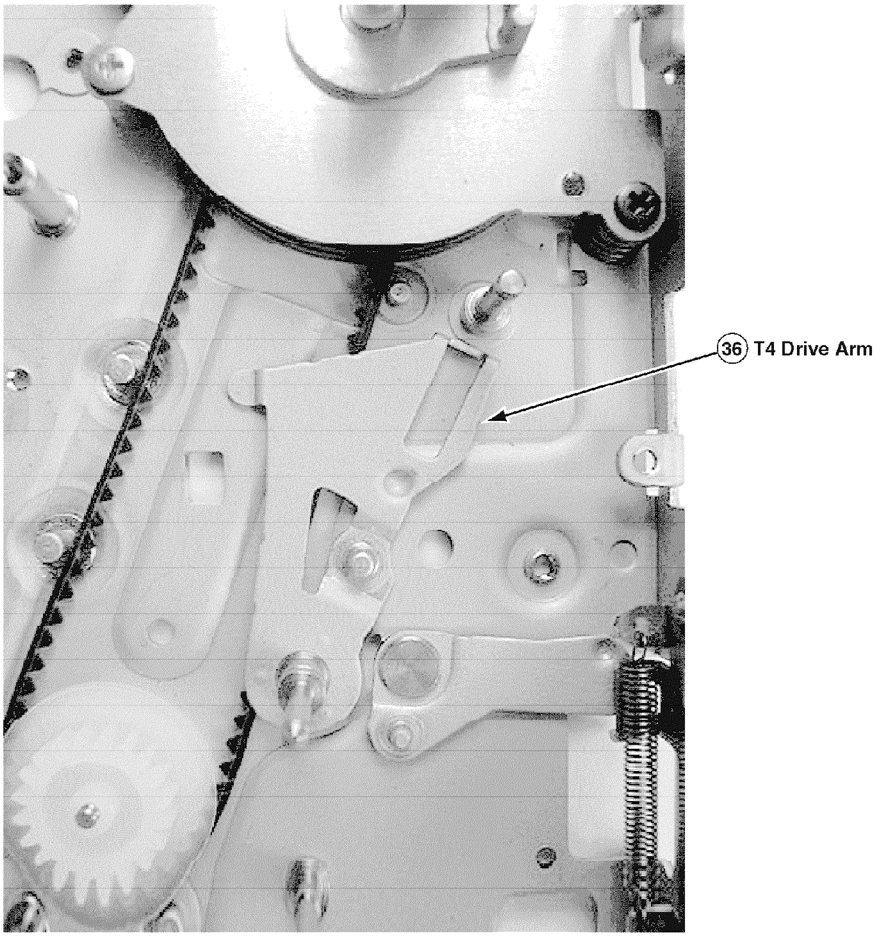
Fig. DM27


Pin
Guide Pin on chassis
(35) Main Plate Unit
Pin on T4 Drive Arm
Slots
Guide Pin on chassis

Reassembly Notes:
1. Installation of Main Plate Unit
1) Install the Main Plate Unit so that Pin on T4 Drive Arm and Guide Pin on chassis are in Slots on Main Plate Unit correctly.

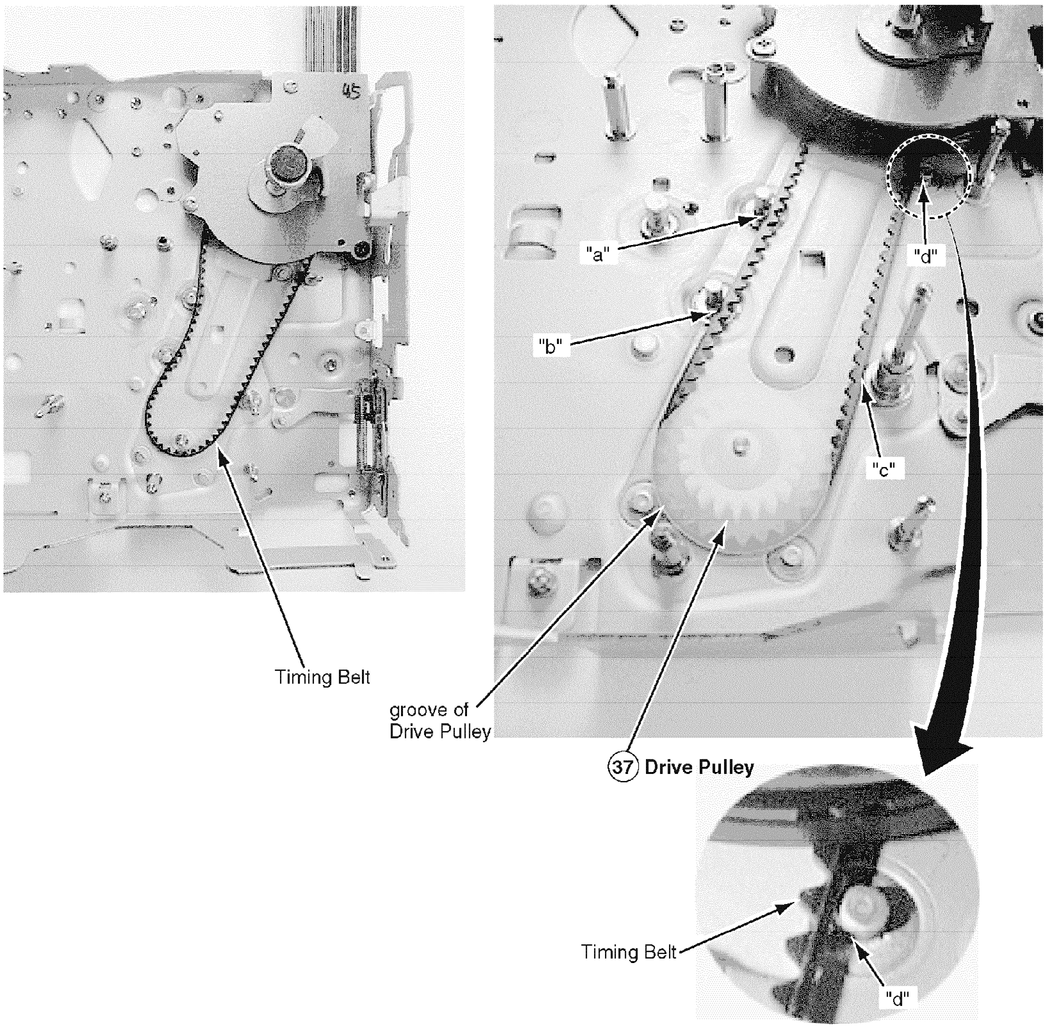
7.2.27. T4 Drive Arm

Fig. DM28


㊱ T4 Drive Arm

7.2.28. Drive Pulley

Fig. DM29

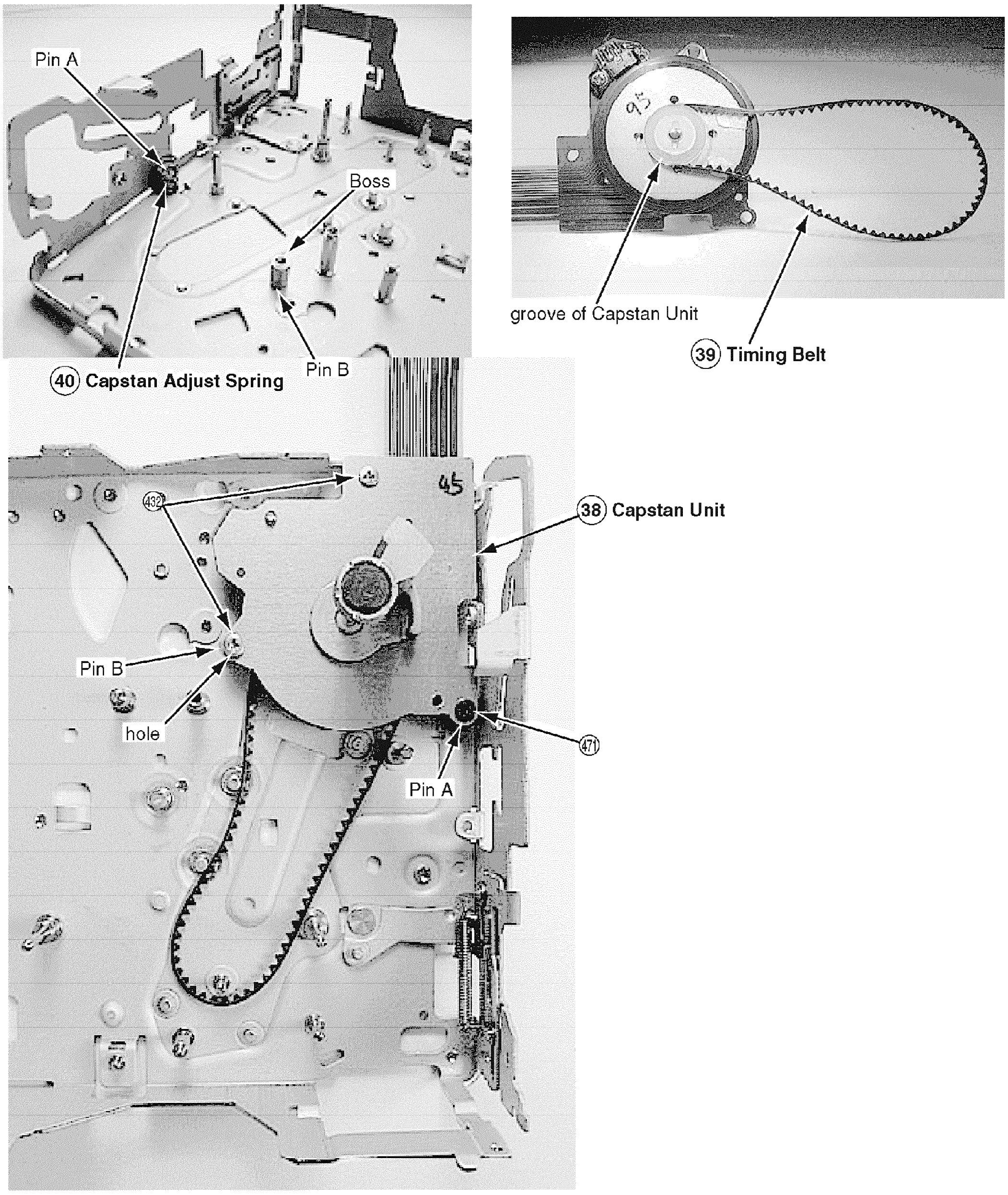

"a"
"d"
"b"
"c"
Timing Belt
groove of Drive Pulley
㊲ Drive Pulley
Timing Belt
"d"

Reassembly Notes:

1. DO NOT let the Timing Belt twist.
   Be careful so as not to let the Timing Belt touch the greased portion.
2. When installing the Drive Pulley, confirm that the Timing Belt is in correct position as shown.
3. After installing the Drive Pulley, confirm that Drive Pulley and Capstan Rotor can rotate smoothly.

7.2.29. Capstan Unit, Timing Belt, Capstan Adjust Spring

Fig. DM30

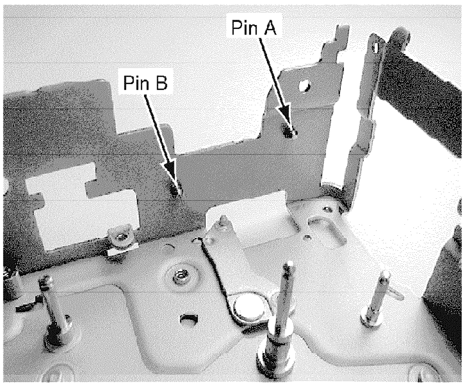

Pin A
Boss
Pin B
㊵ Capstan Adjust Spring
95
groove of Capstan Unit
㊴ Timing Belt
45
(432)
㊳ Capstan Unit
Pin B
hole
(471)
Pin A

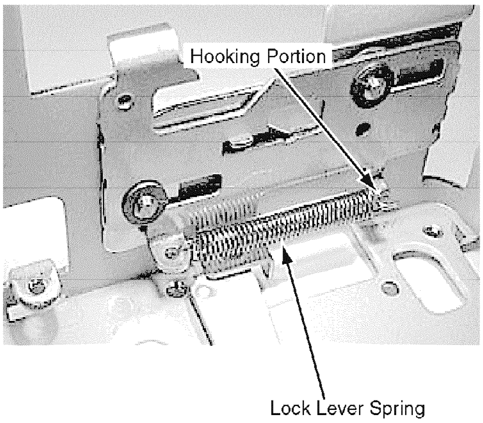
Reassembly Notes:

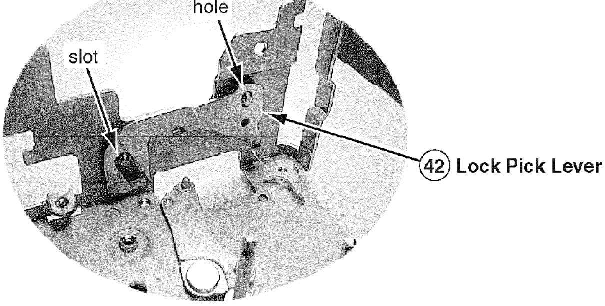
1. When installing the Capstan Unit, hook the Timing Belt to the groove of Capstan Unit.

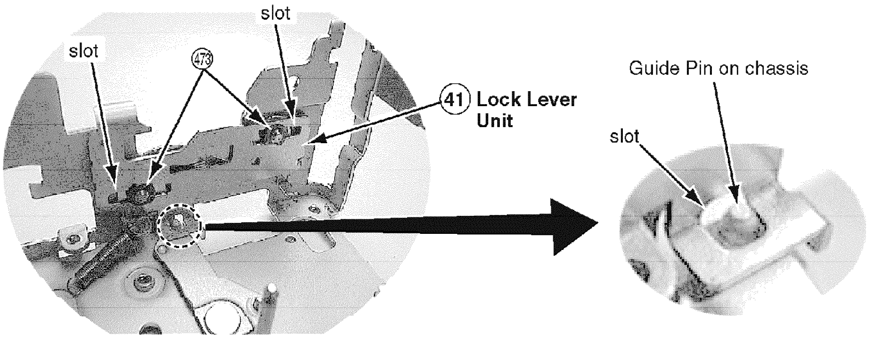
7.2.30. Lock Lever Unit, Lock Pick Lever

Fig. DM31




Hooking Portion
Lock Lever Spring


hole
slot
(42) Lock Pick Lever


slot
slot
(473)
(41) Lock Lever Unit
Guide Pin on chassis
slot

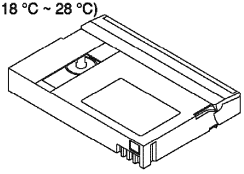
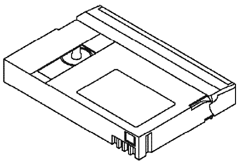
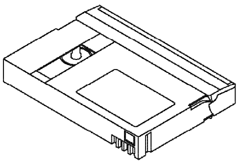
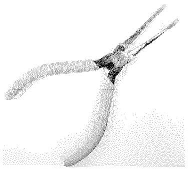
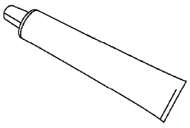
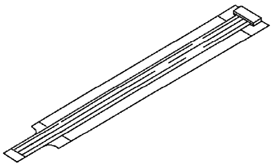
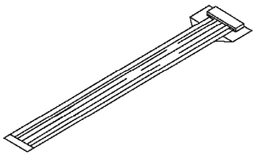
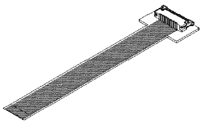
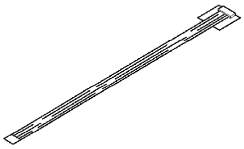
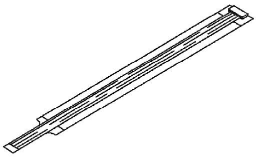
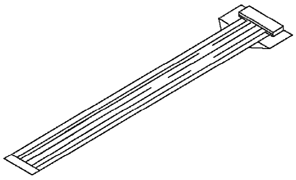
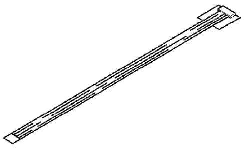
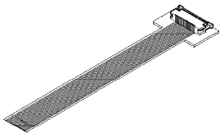
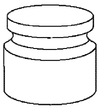
Reassembly Notes:

1. Installation of Lock Lever Unit

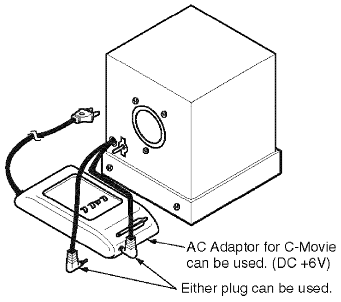
1) Install the Lock Lever Unit so that Pin A and Pin B are inserted to slots on Lock Lever Unit and Guide Pin on chassis is inserted to slot on Lock Lever Unit.

8. ADJUSTMENT PROCEDURES

8.1. SERVICE FIXTURES & TOOLS

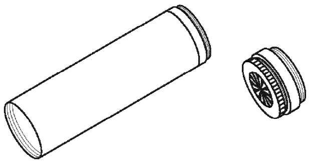
Color Bar Standard Tape VFM3010EDS (Keeping condition: Keep at 18 °C ~ 28 °C) 	**Tape Path Alignment Tape** LSVQ0041 	**DVC Head Cleaning Tape** VFK1451 
Plier for Non ZIF Connector LSVQ0028 	**Capstan Tilt Adjustment Tool** LSVQ0020 	**Grease** LSUQ0002 
Extension Cable 14P VFKW0124A 	**Extension Cable 22P** VUVS0012 	**Extension Cable 18P** LSUA0017 
Extension Cable 10P LSUA0016 	**Extension Cable 12P** VUVS0007 	**Extension Cable 28P** VUVS0015 
Extension Cable 11P LSUA0030 	**Extension Cable 20P** LSUA0020 	**Grease** VFKS0081 

Light Box and AC Adaptor VFK1164LBX1

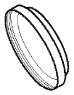


(AC Adaptor is not supplied)

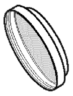
Infinity Lens (with Focus Chart) VFK1164TCM02



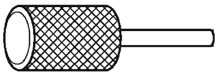
43mm Ring VFK1164TAR43



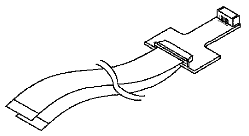
Color Conversion Filter (C14) VFK1164TFCT2



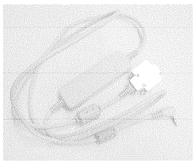
Post Height Adjustment Fixture LSVQ0021



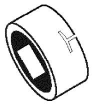
Camera Connecting Cable LSUP0017



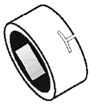
232C(M3) I/F Cable VFK1395



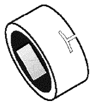
White Chart VFK1164TFWC2



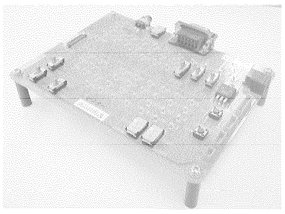
Color Bar Chart VFK1164TFCB2



Gray Scale Chart VFK1164TFGS2



Measuring Board for Electrical Adjustment VFK1308E



DC Output Cable and AC Adaptor VJA0941

(AC Adaptor is not supplied)

8.2. MECHANICAL ADJUSTMENT

8.2.1. Comparison between adjustment items and replacement parts

Replacement Parts Adjustment Items	TENSION ARM UNIT	CAPSTAN UNIT	PINCH ARM UNIT	CYLINDER UNIT	CYLINDER BASE UNIT	S POST UNIT	T POST UNIT	MECHANISM CHASSIS ASS'Y
TENSION POST ADJUSTMENT	○							
CAPSTAN TILT ADJUSTMENT		○						
T4 POST HEIGHT CONFIRMATION			○					
ENVELOPE OUTPUT ADJUSTMENT				○	○	○	○	○

8.2.2. TENSION POST ADJUSTMENT

Purpose:

To maintain a constant tape tension so that the tape runs with stability.

Symptom of Misadjustment:

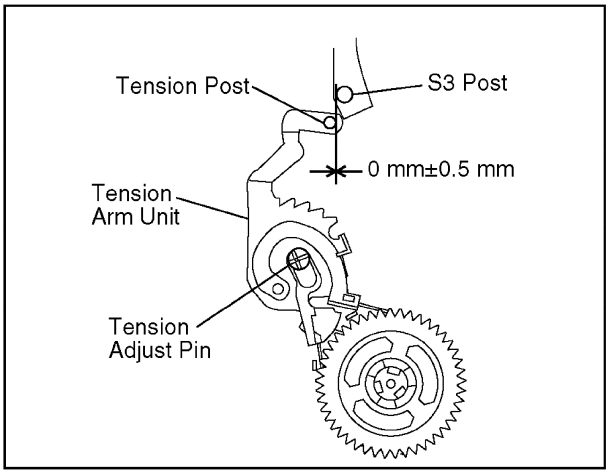
1. **If the adjusted value is below the specification, the tape tension is not sufficient, thus causing a tape slack.**
2. **If the adjusted value is above the specification, the tape tension is too high, thus causing tape damage.**

Equipment Required:

Flat Headed (-) Screwdriver (Purchase Locally)

1. **Without cassette tape, place the Mechanism in the PLAY Position (the Tension Post goes to the most left side) by applying DC Power Supply (3 V) to the Loading Motor terminal.**
2. **Confirm that there is a space of 0 mm±0.5 mm between the right edge of the Tension Post and the left edge of the S3 Post. If not, with Flat Headed (-) Screwdriver, adjust the Tension Adjust Pin so that the space of 0 mm±0.5 mm is made.**

Fig. T1


Tension Post
S3 Post
0 mm±0.5 mm
Tension Arm Unit
Tension Adjust Pin

8.2.3. CAPSTAN TILT ADJUSTMENT

Purpose:

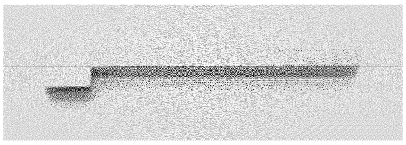
To adjust the tilt of the Capstan Shaft properly.

Symptom of Misadjustment:

If the tilt of the Capstan Shaft is poorly adjusted, the tape might be damaged.

Equipment Required:

Capstan Tilt Adjustment Tool (LSVQ0020)



1. **Set the Capstan Tilt Adjustment Tool between Capstan Unit and Chassis.**

Fig. T2-1

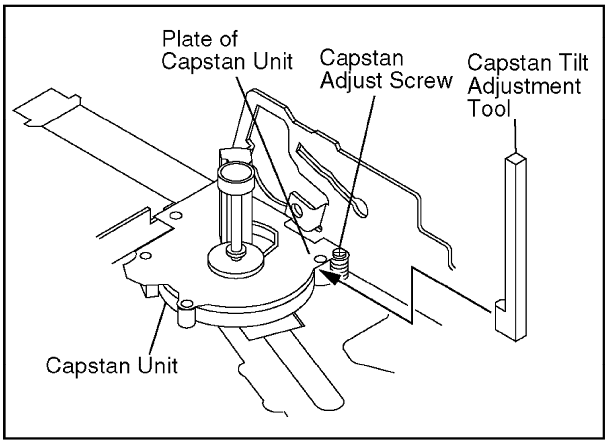
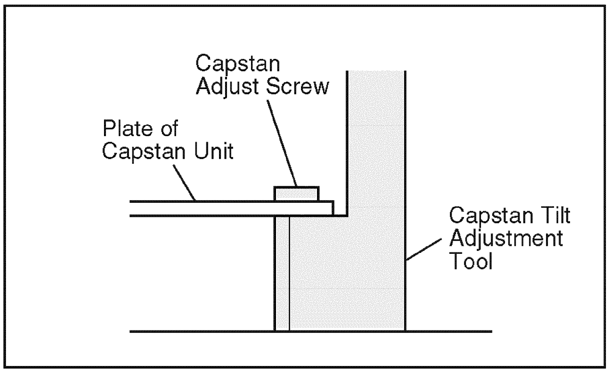


Plate of Capstan Unit
Capstan Adjust Screw
Capstan Tilt Adjustment Tool
Capstan Unit

2. **Tighten the Capstan Adjust Screw so that the plate of Capstan Unit just touches to the Capstan Tilt Adjustment Tool.**

Fig. T2-2


Capstan Adjust Screw
Plate of Capstan Unit
Capstan Tilt Adjustment Tool

8.2.4. T4 POST HEIGHT CONFIRMATION

Purpose:

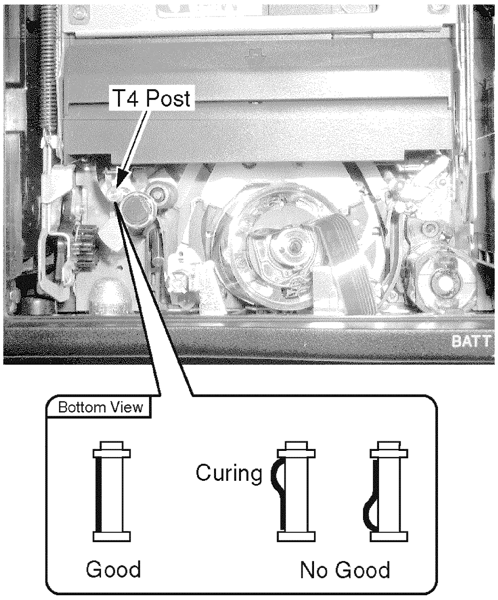
To confirm so that the height of the T4 Post is proper.

Symptom:

If the height of the T4 Post is incorrect, the tape might be damaged.

1. **To remove the Cassette Cover, refer to "Disassembly Method" of CABINET SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES.**
2. **Insert the tape without the Cassette Cover.**
3. **Confirm that the tape travels without curing at T4 post in both PLAY and REVIEW modes. If curing is apparent, replace the Pinch Arm Unit.**

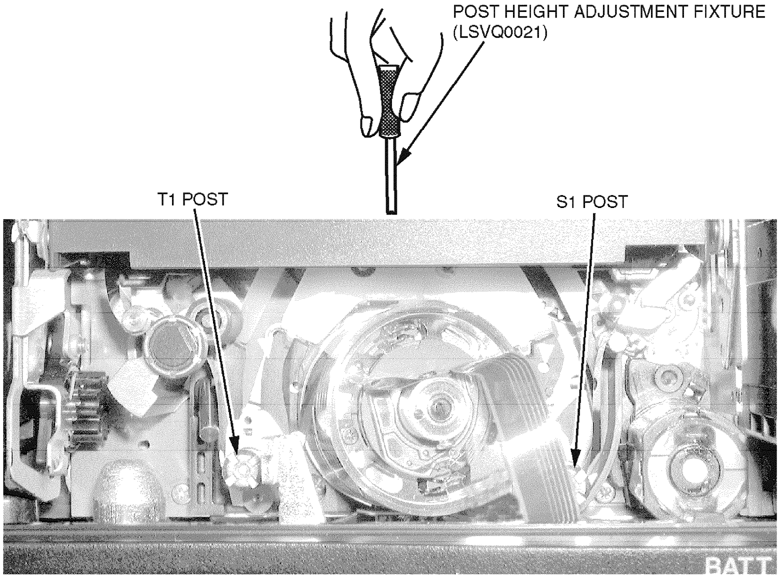
Fig. T3-2

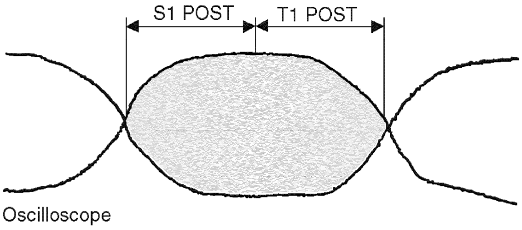

T4 Post
BATT
Bottom View
Curing
Good
No Good

8.2.5. ENVELOPE OUTPUT ADJUSTMENT

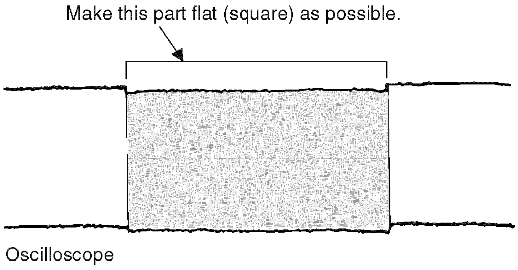
1. **Connect the Camcorder and the Measuring Board with Camera Connecting Cable.**
2. **Connect the oscilloscope to "Envelope TP" on the Measuring Board.**

3. **Playback the Tape Path Alignment Tape (LSVQ0041).**
4. **Adjust the S1 post by turning the top of post with Post Height Adjustment Fixture (LSVQ0021) so that the left half of envelope signal becomes flat as possible.**
5. **Adjust the T1 post by turning the top of post with Post Height Adjustment Fixture (LSVQ0021) so that the right half of envelope signal becomes flat as possible.**


POST HEIGHT ADJUSTMENT FIXTURE
(LSVQ0021)
T1 POST
S1 POST
BATT


S1 POST
T1 POST
Oscilloscope

Before Adj.


Make this part flat (square) as possible.
Oscilloscope

After Adj.

> **Note:**
> **After the adjustment, be sure to confirm BER (Bit Error Ratio) using EVR Adjustment Software. If it is NG, try this adjustment once again.**

8.3. ELECTRICAL ADJUSTMENT

8.3.1. INITIAL GUIDELINE

The table below shows which adjustments are necessary according to the unit parts and individual parts to be replaced. Make sure to perform these adjustments shown below as necessary.

Replacement Parts Adjustment Item		MAIN C.B.A.	IC301 (CAMERA SIGNAL PROCESS)	IC703 (IRIS DRIVE)	IC901(EVF SIGNAL PROCESS)	IC3001 (CAMERA DIGITAL SIGNAL PROCESS/SHUFFLING)	IC3002 (VIDEO/AUDIO SIGNAL PROCESS)	IC6007 (EEPROM)	IC6009 (DAC)	LCD C.B.A.	IC8001(LCD RGB SIGNAL PROCESS)	CCD UNIT	LENS UNIT	LCD UNIT	CYLINDER UNIT
VIDEO	Sensitivity Adjustment of Tape sensors	○						○							
	PG shifter Adjustment	○						○							○
	Luminance Level Adjustment	○				○	○	○							
	Color Level Adjustment	○				○	○	○							
Camera	Hall Amp Adjustment	○		○				○	○				○		
	Pixel Error Interpolation Adjustment for CCD	○						○				○			
	Zoom tracking Adjustment	○						○					○		
	Iris PWM Adjustment	○		○				○	○				○		
	White Balance Adjustment	○	○			○		○				○			
LCD	PLL Adjustment	○						○		○	○			○	
	Pedestal Level Adjustment	○						○		○	○			○	
	RB Sub Pedestal Level Adjustment	○						○		○	○			○	
	COM Level Adjustment	○						○		○	○			○	
	White Balance Adjustment	○						○		○	○			○	
Color EVF	PLL Adjustment	○			○			○							
	Pedestal Level Adjustment	○			○			○							
	RB Sub Pedestal Level Adjustment	○			○			○							
	White Balance Adjustment	○			○			○							

Note: ○ : Adjustment Item

8.3.2. TEST EQUIPMENT

1. **Dual-Trace Oscilloscope**
   Voltage Range: 0.001 to 50 V/Div.
   Frequency Range: DC to 50 MHz
   Probes: 10:1, 1:1
2. **Frequency Counter**
3. **Vectorscope**
4. **Plastic Tip Driver**
5. **Personal Computer**
   PC: IBM PC/AT or compatible
   OS: MS-DOS or MS-Windows
   CPU: 486 or higher
   Drive: 3.5 inch 1.44 MB floppy disk drive
   Port: D-Sub-9-pin Serial or D-Sub-25-pin Serial
   Monitor: VGA Color
6. **PC-EVR Adjustment Program (VF2D2002DV10)**
   Note:
   Ask latest version when placing order for PC-EVR Adjustment

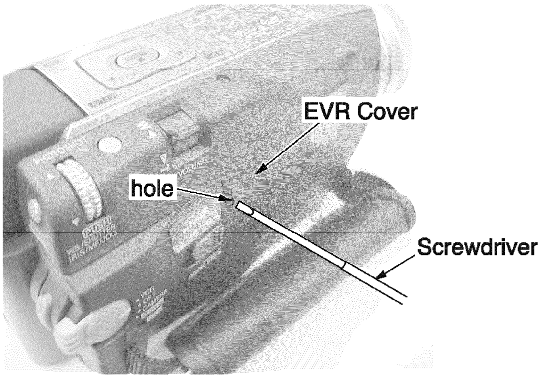
program.

7. Measuring Board (VFK1308E)
8. 232C (M3) I/F Cable (VFK1395)
9. Camera Connecting Cable (LSUP0017)
10. DC Output Cable and AC Adaptor (VJA0941)
11. Color Bar Standard Tape (VFM3010EDS)
    (Keeping condition: Keep at 18 °C ~ 28 °C)
12. Gray Scale Chart (VFK1164TFGS2)
13. White Chart (VFK1164TFWC2)
14. Color Bar Chart (VFK1164TFCB2)
15. Light Box and AC Adaptor (for VHS-C)
16. Infinity Lens (with Focus Chart) (VFK1164TCM02)
17. AC Adaptor (for DVC)
18. 43 mm Ring (VFK1164TAR43)
19. Color Conversion Filter (C14) (VFK1164TFCT2)

8.3.3. PREPARATION

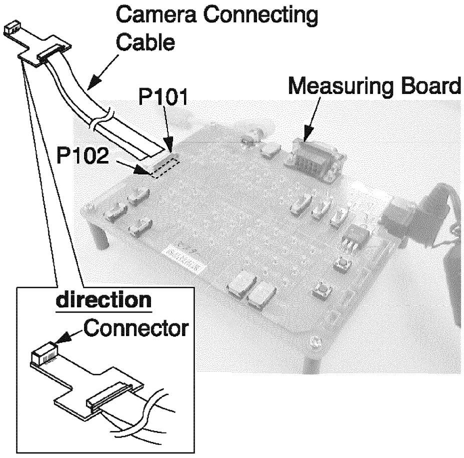
1. Insert a flat headed (-) Screwdriver or similar object into the hole, remove the EVR Cover.

Fig. E1-1



2. Connect the Camera Connecting Cable to P101 and P102 on the Measuring Board.

Fig. E1-2

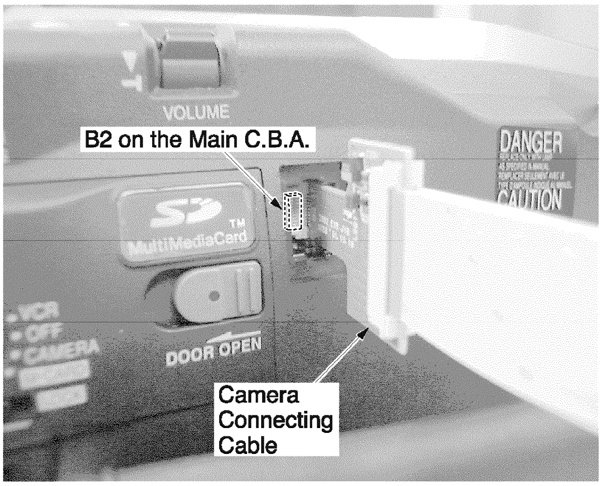

Camera Connecting Cable
P101
Measuring Board
P102
direction
Connector

Note:

Install Camera Connecting Cable so that the Connector is upward as shown.

3. **Connect the Camera Connecting Cable to the Connector B2 on the Main C.B.A.**

Fig. E1-3


B2 on the Main C.B.A.
Camera Connecting Cable

4. **Connect the AC Adaptor to the unit.**
5. **Connect the DC Output Cable (and AC Adaptor) to the J101 on the Measuring Board.**
6. **Connect the J102 on the Measuring Board to RS232C of the PC with 232C (M3) I/F Cable.**
7. **Set the SW101 (RS232C SEL) on the Interface Board to "M3."**
8. **Set the SW102 (FLUSH1) on the Interface Board to "NORMAL."**
9. **Set the SW103 (VTR TEST) on the Interface Board to "L."**
10. **Set the SW104 (BST TEST) on the Interface Board to "NORMAL."**
11. **Set the SW105 on the Interface Board to "L."**

12. Set the SW106 on the Interface Board to "ON."

13. Set the SW107 on the Interface Board to center.

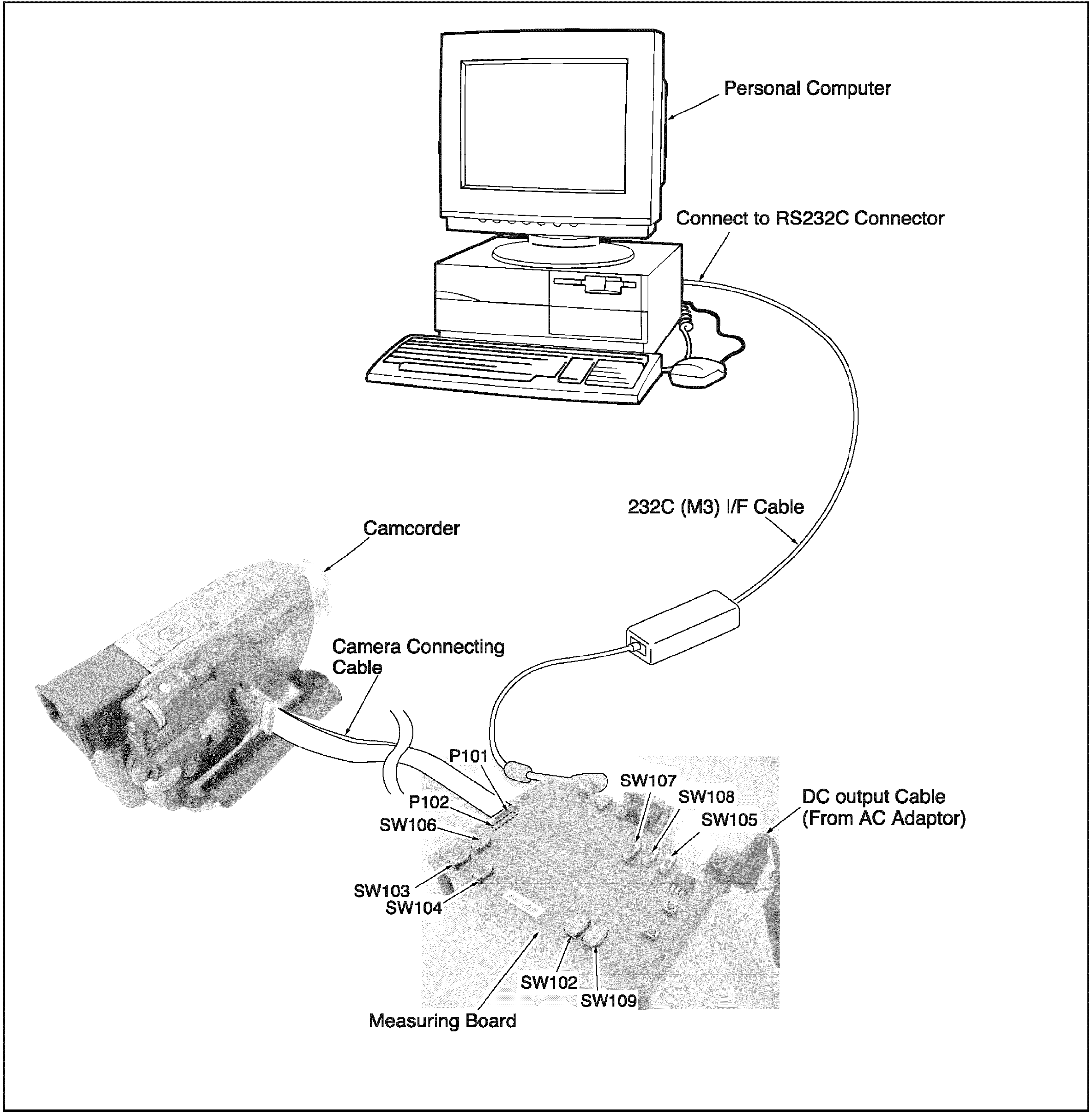
14. Set the SW108 on the Interface Board to "L."

15. Set the SW109 (FLUSH2) on the Measuring Board to "FLUSH."

16. Power on the unit.

Fig. E1-4

<Computer Assisted Adjustment System>



Personal Computer
Connect to RS232C Connector
232C (M3) I/F Cable
Camcorder
Camera Connecting Cable
P101
P102
SW106
SW107
SW108
SW105
DC output Cable (From AC Adaptor)
SW103
SW104
SW102
SW109
Measuring Board

8.3.4. SET UP OF PC-EVR ADJUSTMENT PROGRAM

1. Turn on the Personal Computer.
   MS-Windows will be set up automatically.

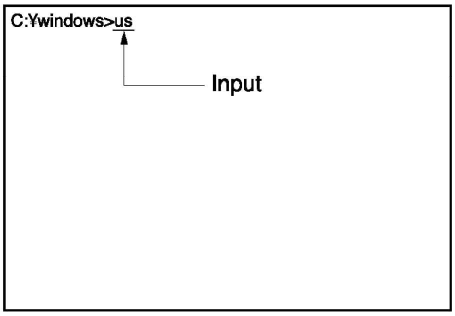
2. Restart it in MS-DOS mode.

3. Change the current directory to the one including the PC-EVR Adjustment Program and start up the PC-EVR Adjustment Program as

follows.

A. If MS-DOS is Japanese mode, input "us," and then press "ENTER" key to be US mode on.

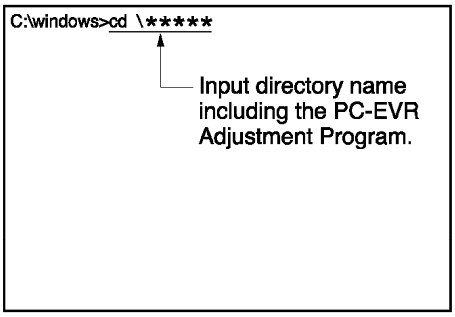
Fig. E2-1



```
C:¥windows>us
```

B. Input "cd ***," and then press "ENTER" key to change the directory to the one including the PC-EVR Adjustment Program.**

Fig. E2-2

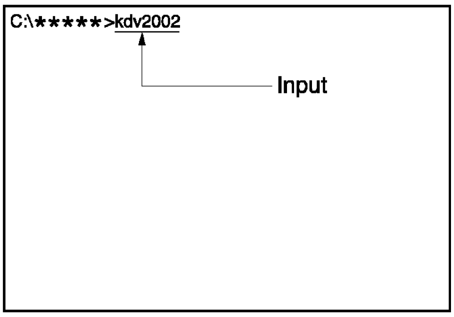


```
C:\windows>cd \*****
```

Input directory name
including the PC-EVR
Adjustment Program.

C. Input "kdv2002," and then press "ENTER" key to start up the PC-EVR Adjustment Program.

Fig. E2-3



```
C:\*****>kdv2002
```

"Select Model Number Menu" will be displayed.

4. Select the model number which you are servicing, and then press "Enter" key. The starting display will be displayed.

5. Perform set up items according to menu until "Main Menu" is displayed.

8.3.5. HOW TO USE MAIN MENU

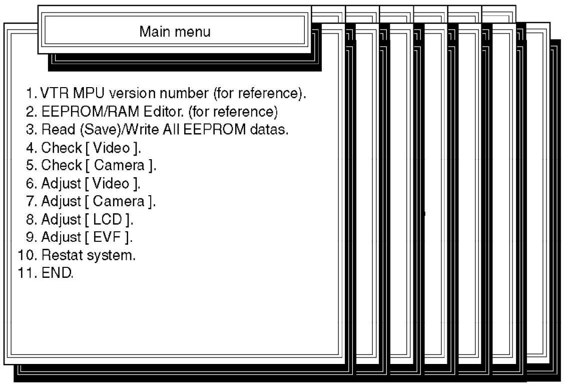
8.3.5.1. Main Menu

Select a Sub Menu to check, adjust the unit. by pressing ↑ ↓ (UP/DOWN) Key in Main Menu. Then, press "ENTER" Key. The Sub Menu will be displayed.

Note:

Menu 6 through 9 are needed for adjustment.

Fig. E3-1

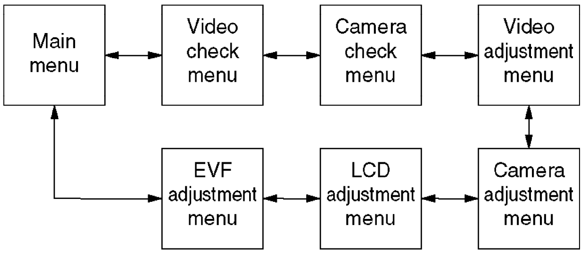


Main menu

1. VTR MPU version number (for reference).
2. EEPROM/RAM Editor. (for reference)
3. Read (Save)/Write All EEPROM datas.
4. Check [Video].
5. Check [Camera].
6. Adjust [Video].
7. Adjust [Camera].
8. Adjust [LCD].
9. Adjust [EVF].
10. Restat system.
11. END.

With using ← → key, you can also see sub menu in order.

Fig. E3-2


Main menu
Video check menu
Camera check menu
Video adjustment menu
EVF adjustment menu
LCD adjustment menu
Camera adjustment menu

Note:

The adjusted data is stored to EEPROM IC after each adjustment.

9. SCHEMATIC DIAGRAMS

9.1. SCHEMATIC DIAGRAM & CIRCUIT BOARD LAYOUT NOTES

9.2. REAR SCHEMATIC DIAGRAM

9.3. MICROPHONE/FRONT/EVF BACKLIGHT SCHEMATIC DIAGRAMS

9.4. LCD SCHEMATIC DIAGRAM

9.5. INTERCONNECTION SCHEMATIC DIAGRAM

9.6. VOLTAGE CHART

10. CIRCUIT BOARD LAYOUT

10.1. REAR C.B.A.

10.2. MICROPHONE/FRONT/EVF BACKLIGHT C.B.A.

10.3. LCD C.B.A.

11. BLOCK DIAGRAMS

12. EXPLODED VIEWS

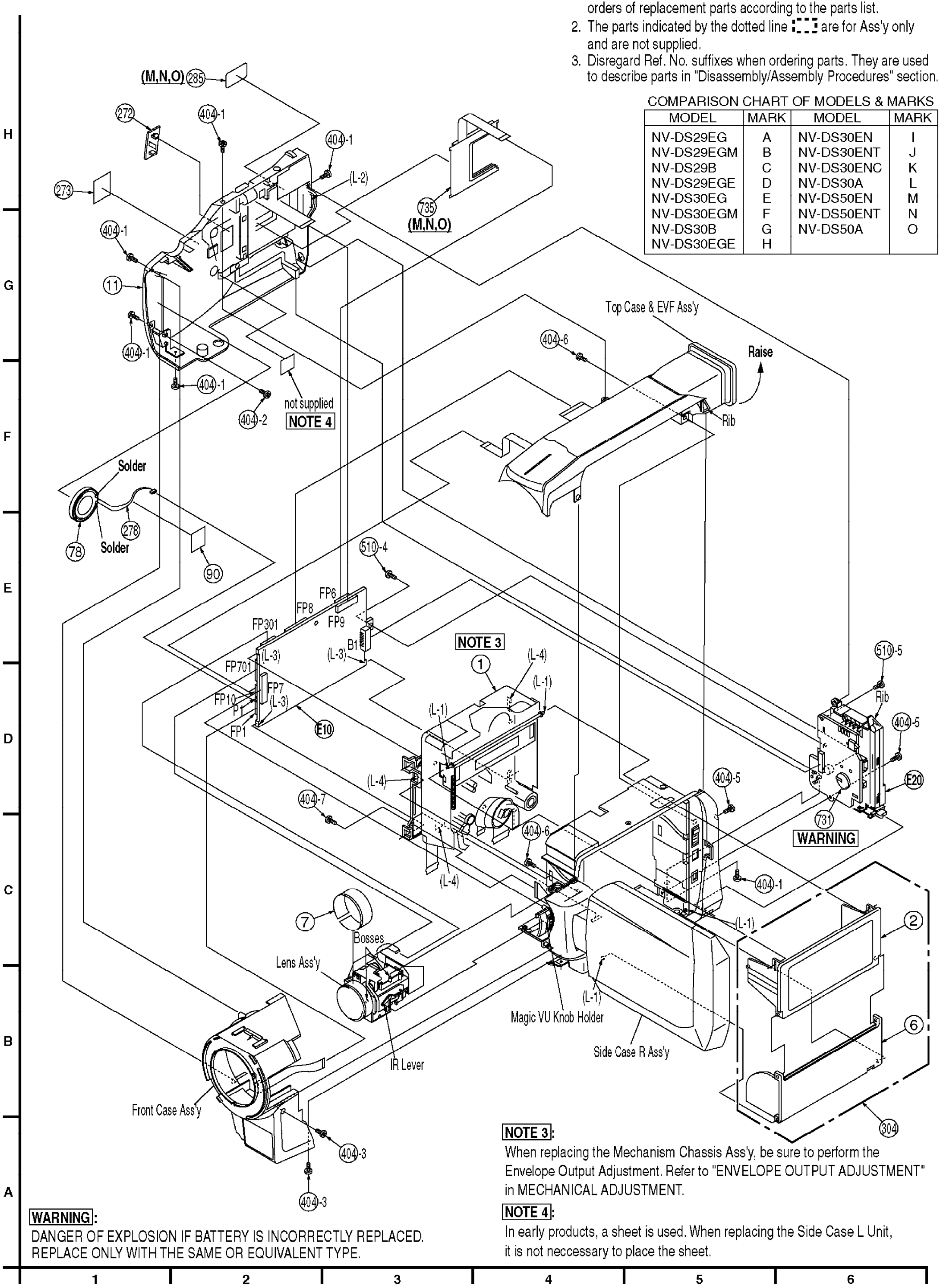
12.1. MAIN PARTS SECTION

❶ MAIN PARTS SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝⁝⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		


H
G
F
E
D
C
B
A
1
2
3
4
5
6
(M,N,O) 285
272
404-1
404-1
(L-2)
273
735
(M,N,O)
404-1
11
404-1
404-1
404-2
not supplied
NOTE 4
Top Case & EVF Ass'y
404-6
Raise
Rib
Solder
278
78
Solder
90
510-4
FP6
FP8
FP9
FP301
B1
(L-3)
(L-3)
FP701
FP7
(L-3)
FP10
FP1
E10
NOTE 3
1
(L-4)
(L-1)
(L-1)
(L-4)
404-7
(L-4)
404-6
404-5
510-5
Rib
404-5
E20
731
WARNING
404-1
(L-1)
2
6
304
7
Bosses
Lens Ass'y
IR Lever
Magic VU Knob Holder
(L-1)
Side Case R Ass'y
Front Case Ass'y
404-3
404-3

NOTE 3:
When replacing the Mechanism Chassis Ass'y, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.

NOTE 4:
In early products, a sheet is used. When replacing the Side Case L Unit, it is not neccessary to place the sheet.

WARNING:
DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.
REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.

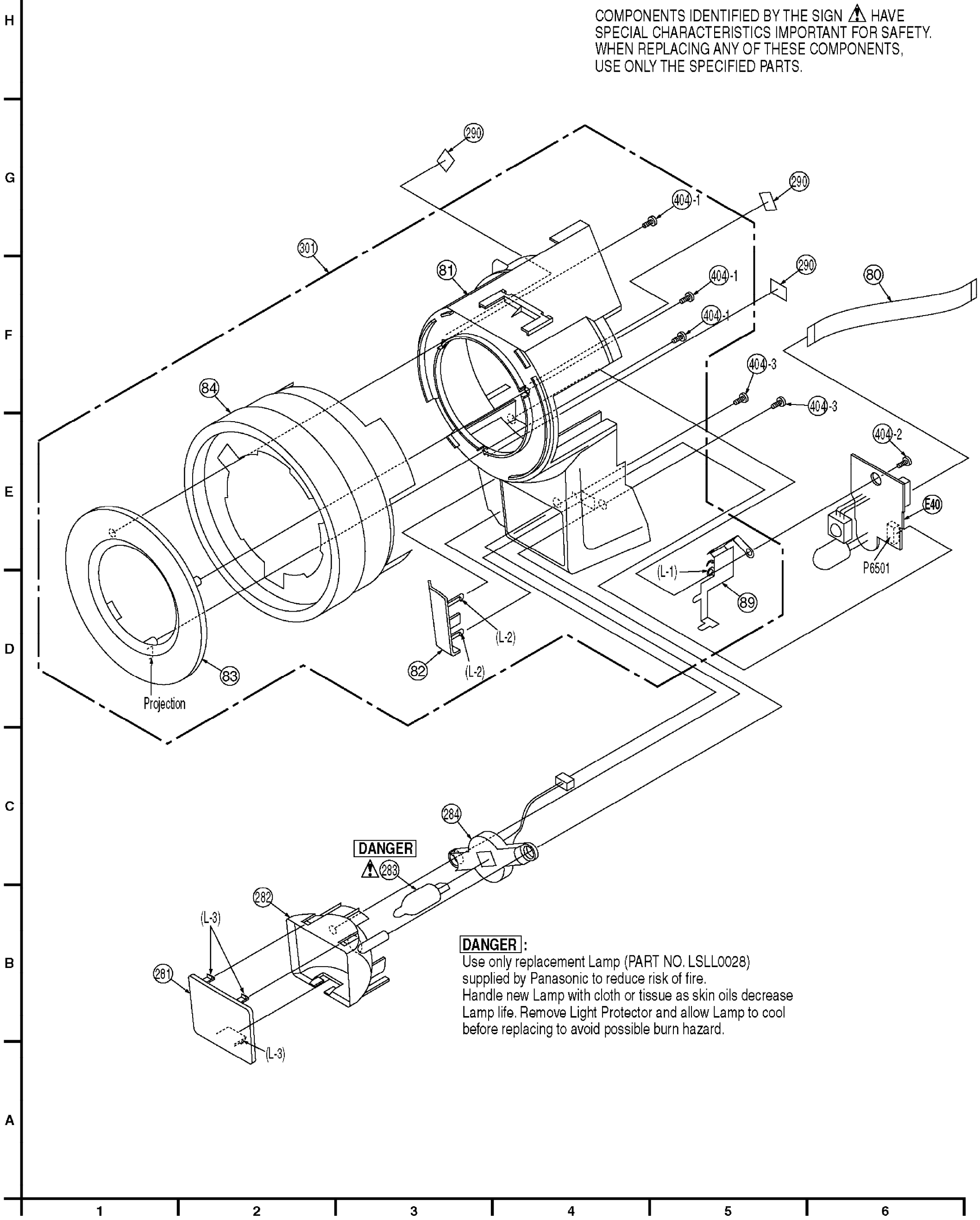
12.2. FRONT CASE SECTION

❷ FRONT CASE SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁞⁚⁞ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

IMPORTANT SAFTY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.


H
G
F
E
D
C
B
A
1
2
3
4
5
6
290
404-1
290
301
81
404-1
290
80
404-1
404-3
404-3
84
404-2
E40
P6501
(L-1)
89
82
(L-2)
(L-2)
83
Projection
284
DANGER
⚠283
282
(L-3)
281
(L-3)

DANGER :
Use only replacement Lamp (PART NO. LSLL0028) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils decrease Lamp life. Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

12.3. CCD AND LENS SECTION

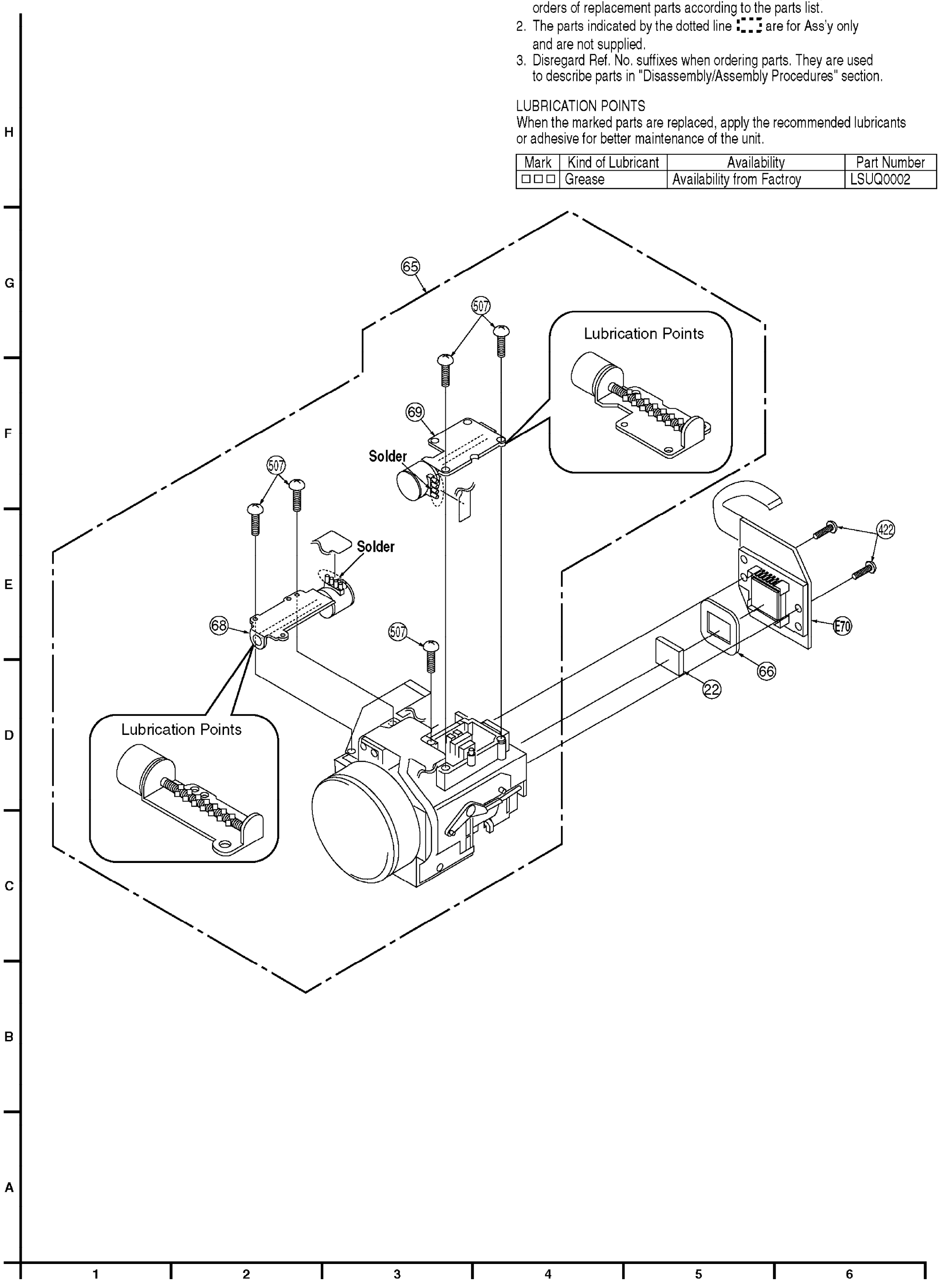
❸ CCD AND LENS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
□□□	Grease	Availability from Factroy	LSUQ0002

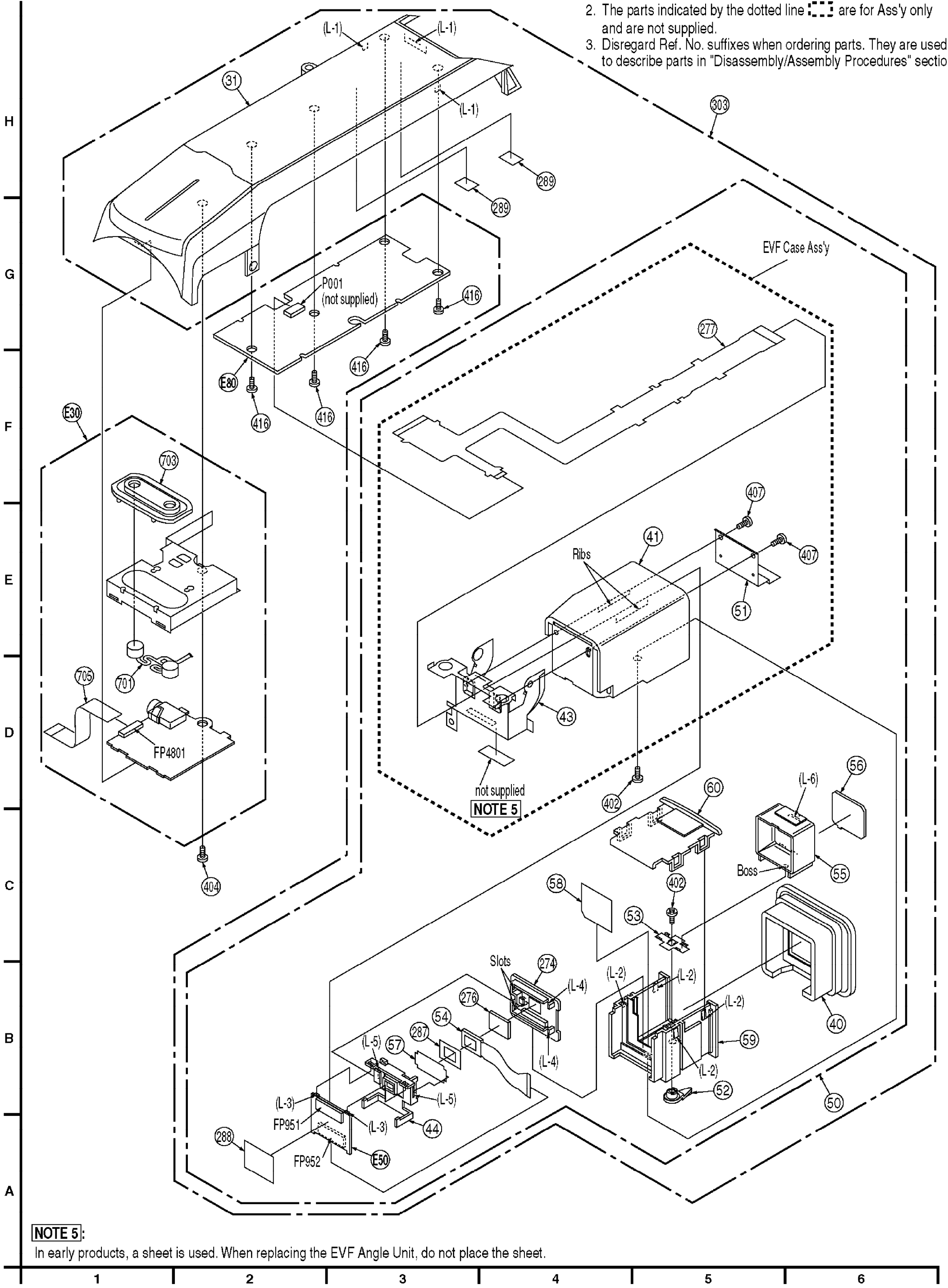

H
G
F
E
D
C
B
A
1
2
3
4
5
6
65
507
507
507
69
Solder
Solder
Lubrication Points
Lubrication Points
68
422
E70
66
22

12.4. TOP CASE AND EVF SECTION

❹ TOP CASE AND EVF SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝‥⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.


H
G
F
E
D
C
B
A
1
2
3
4
5
6
(L-1)
(L-1)
(L-1)
31
303
289
289
P001
(not supplied)
416
416
416
416
E80
E30
703
701
705
FP4801
404
EVF Case Ass'y
277
407
407
41
Ribs
51
43
not supplied
NOTE 5
402
60
56
(L-6)
55
Boss
58
402
53
40
Slots
274
(L-4)
(L-2)
(L-2)
(L-2)
(L-2)
276
54
287
(L-5)
57
(L-5)
(L-4)
59
52
50
(L-3)
FP951
(L-3)
44
288
FP952
E50

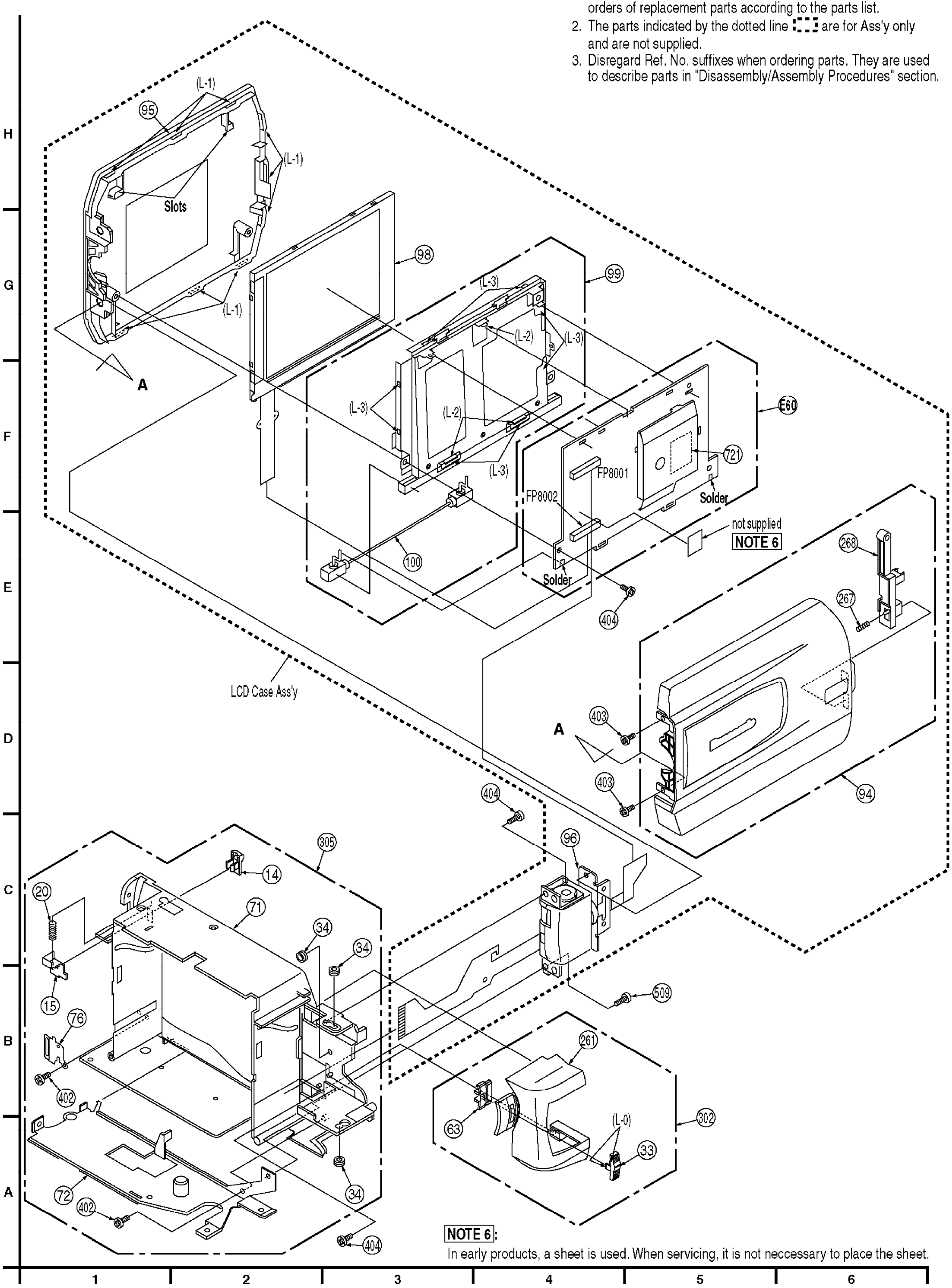
NOTE 5:
In early products, a sheet is used. When replacing the EVF Angle Unit, do not place the sheet.

12.5. SIDE CASE R AND LCD SECTION

❺ SIDE CASE R AND LCD SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁞⁚⁞ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.


H
G
F
E
D
C
B
A
1
2
3
4
5
6
(L-1)
95
(L-1)
Slots
(L-1)
98
99
(L-3)
(L-2)
(L-3)
(L-3)
(L-2)
(L-3)
A
E60
721
FP8001
FP8002
Solder
Solder
not supplied
NOTE 6
100
404
268
267
LCD Case Ass'y
403
A
403
94
404
96
305
14
20
71
34
34
15
76
402
509
261
302
63
(L-0)
33
34
72
402
404

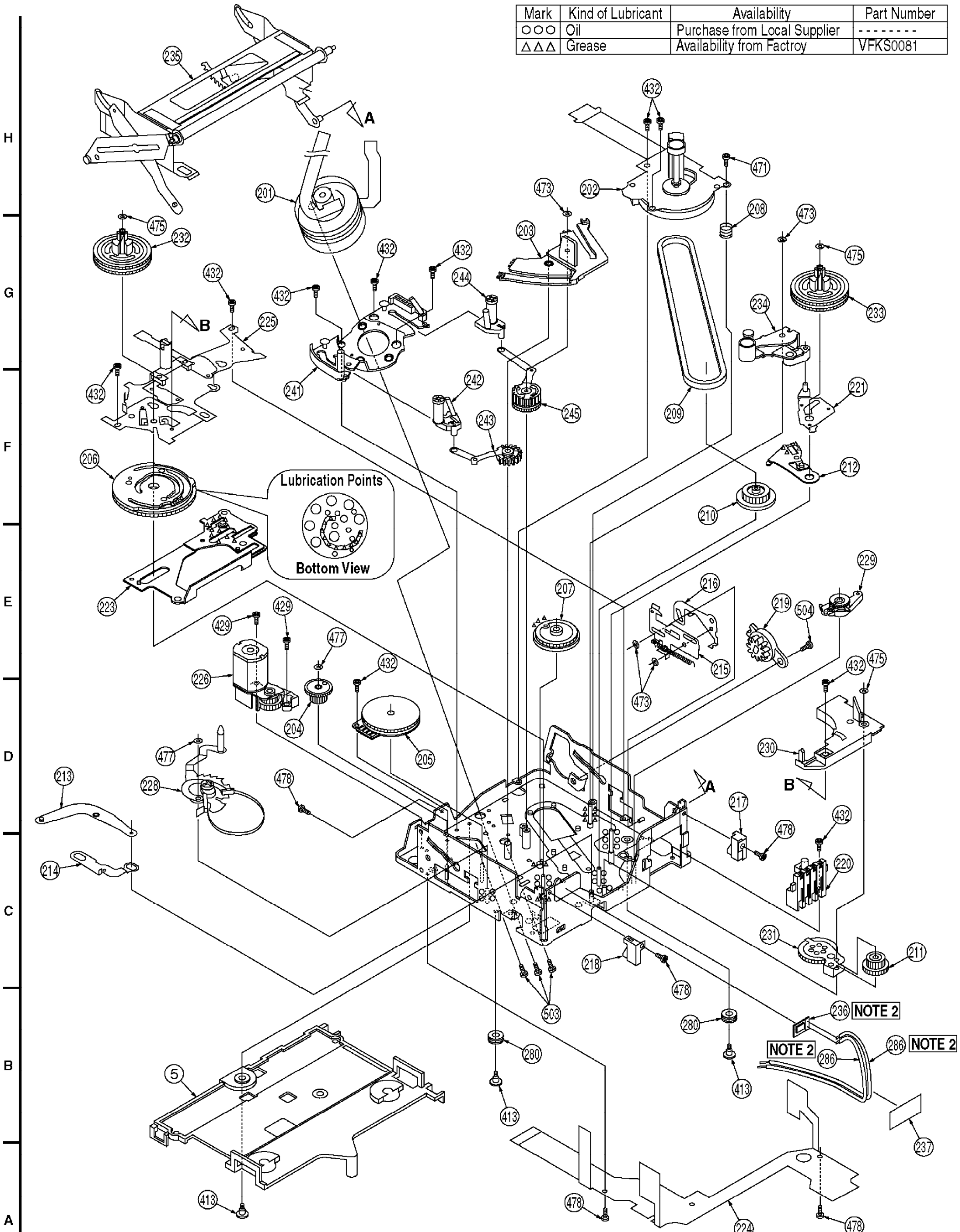
NOTE 6: In early products, a sheet is used. When servicing, it is not neccessary to place the sheet.

12.6. MECHANISM SECTION

❻ MECHANISM SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

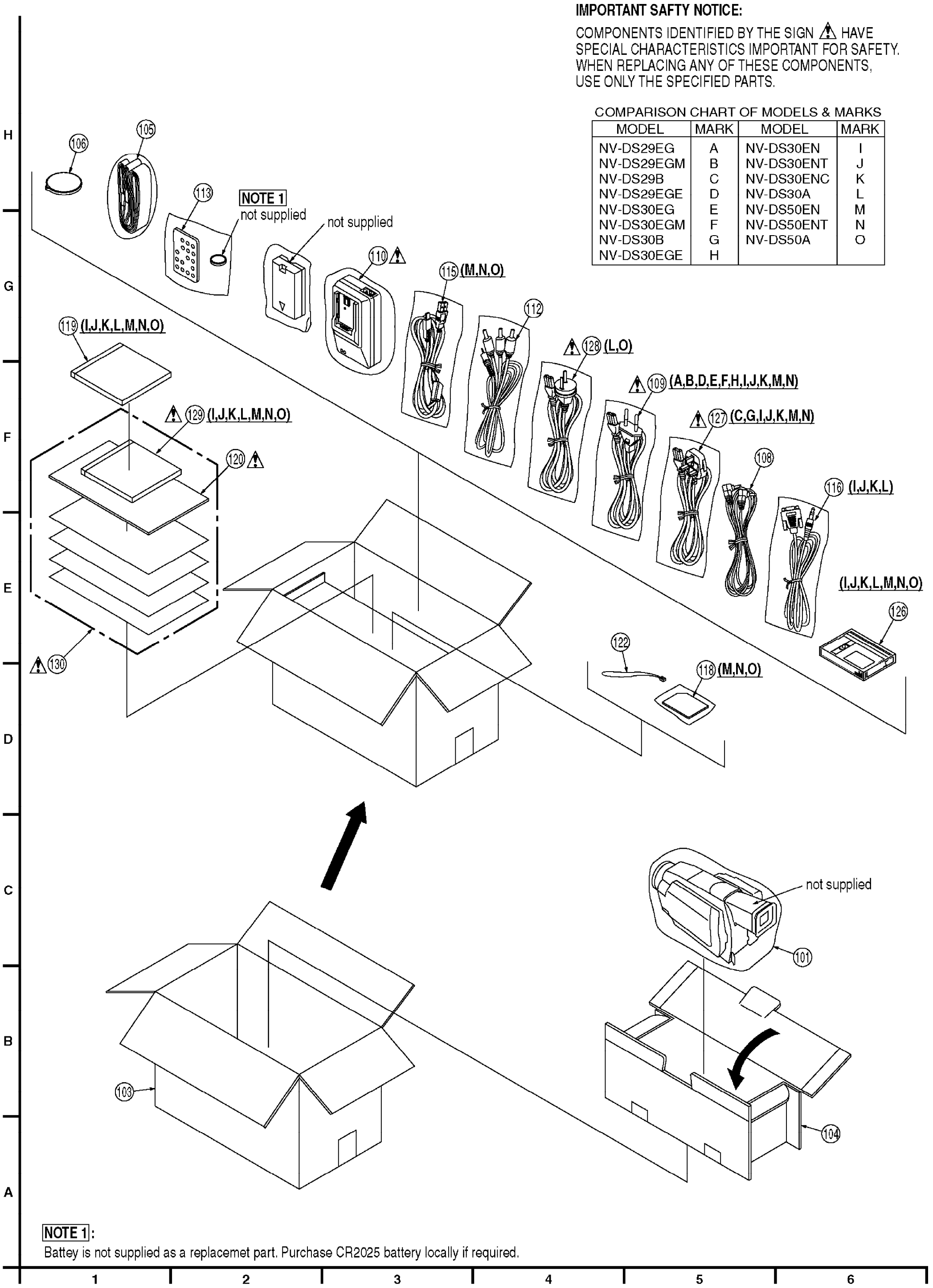
Mark	Kind of Lubricant	Availability	Part Number
○○○	Oil	Purchase from Local Supplier	--------
△△△	Grease	Availability from Factroy	VFKS0081


235
A
201
432
473
202
471
208
473
475
232
432
432
244
432
203
475
233
234
B
225
432
241
242
245
209
221
243
212
206
Lubrication Points
Bottom View
210
229
223
207
216
219
504
429
429
477
432
475
215
473
226
432
204
205
230
477
213
228
478
A
B
217
478
432
220
214
231
211
218
478
503
236 NOTE 2
280
280
NOTE 2
286
286 NOTE 2
5
413
413
237
413
478
224
478
H
G
F
E
D
C
B
A
1
2
3
4
5
6

NOTE 2:
The DEW Sensor (Ref. No. 236) or DEW Cables (Ref. No. 286) is supplied separately as replacement parts. When replacing the DEW Sensor in early products, be sure to replace both the DEW Sensor and the DEW Cables. Refer to "DEW Sensor, DEW Cable" of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES.

12.7. PACKING PARTS AND ACCESSORIES SECTION

❼ PACKING PARTS AND ACCESSORIES SECTION



106
105
113
NOTE 1
not supplied
not supplied
110
115 (M,N,O)
112
119 (I,J,K,L,M,N,O)
128 (L,O)
109 (A,B,D,E,F,H,I,J,K,M,N)
129 (I,J,K,L,M,N,O)
127 (C,G,I,J,K,M,N)
120
108
116 (I,J,K,L)
(I,J,K,L,M,N,O)
126
122
118 (M,N,O)
130
not supplied
101
103
104
H
G
F
E
D
C
B
A
1
2
3
4
5
6

IMPORTANT SAFTY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

NOTE 1:
Battey is not supplied as a replacemet part. Purchase CR2025 battery locally if required.

13. REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

13.1. REPLACEMENT NOTES

13.1.1. General Notes

1. Use only original replacement parts:
To maintain original function and reliability of repaired units, use only

original replacement parts which are listed with their part numbers in the parts list.

2. IMPORTANT SAFETY NOTICE
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.
3. SPECIAL NOTE
   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.
4. Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
5. Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.
6. Parts with mark "VED" in the Remarks column are supplied from VED. Others are supplied from MKE.
7. Item numbers with capital letter E (Example: E10, E20,...) in the Ref. No. column are shown in the exploded views.
8. Parts whose Ref. Nos. are the same are interchangeable as replacement parts. Any of these parts may be ordered and used as a replacement part.
9. Battery (Ref. No. 731) replacement note:
   WARNING: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.
10. SPECIAL NOTE*
    The following parts are supplied only as units: Front C.B.A. (Ref. No. E40), LCD Case A Unit (Ref. No. 94), Front Case Unit (Ref. No. 301), Front Cover Unit (Ref. No. 302), Top/Electronic Viewfinder Unit (Ref. No. 303), Microphone C.B.A. (Ref. No. E30), Cassette Cover (Ref. No. 304) and Side Case R Unit (Ref. No. 305). Therefore, parts indicated by (*NOTE) in the Remarks column are not supplied as separate replacement parts.
    In case any parts indicated by (*NOTE) require replacing, be sure to replace the whole unit (e.g., entire Front Case Unit).

Ref. No.	Part No.	Ref. No.	Consisting Parts *NOTE	
E40	FRONT C.B.A.		Individual parts on FRONT C.B.A. (Electrical parts)	*NOTE
94	LCD CASE A UNIT	267	LCD LOCK KNOB SPRING	*NOTE
		268	LCD LOCK KNOB	*NOTE
301	FRONT CASE UNIT	81	FRONT CASE,ABS RESIN	*NOTE
		82	INFRARED PANEL	*NOTE
		83	LENS HOOD	*NOTE
		84	LENS RING	*NOTE
		89	FRONT ESD ANGLE	*NOTE
302	FRONT COVER UNIT	33	MAGICVU KNOB	*NOTE
		63	MAGICVU KNOB HOLDER	*NOTE
		261	FRONT COVER	*NOTE
303	TOP/ELECTRONIC VIEWFINDER UNIT	31	TOP CASE UNIT,ABS RESIN	*NOTE
		40	EYE CAP	*NOTE
		41	EVF CASE,ABS RESIN	*NOTE
		43	EVE ANGLE UNIT	*NOTE
		44	LED HOLDER	*NOTE
		50	ELECTRONIC VIEWFINDER UNIT	*NOTE
		51	EVF ESD ANGLE	*NOTE
		52	EYE SIGHT LEVER B	*NOTE
		53	EYE SIGHT LEVER A	*NOTE
		54	LIQUID CRYSTAL DISPLAY PANEL	*NOTE
		55	LENS HOLDER	*NOTE
		56	LENS	*NOTE
		57	LED DIFFUSION SHEET,PLASTIC	*NOTE
		58	PROTECT PLATE A,PLASTIC	*NOTE
		59	EVF PROTECT B	*NOTE
		60	EVF PROTECT A	*NOTE
		274	EVF MASK	*NOTE
		276	PROTECT PLATE B,PLASTIC	*NOTE
		277	TOP FLEXIBLE PRINTED CIRCUIT	*NOTE
		287	MASK CUSHION,URETHANE	*NOTE
		288	SHEET,NYLON-RAYON	*NOTE
		289	CUSHION,NYLON-RAYON	*NOTE
		407	SCREW,STEEL	*NOTE
		E50	ELECTRONIC VIEWFINDER BACK LIGHT C.B.A.	*NOTE
			Individual parts on ELECTRONIC VIEWFINDER BACK LIGHT C.B.A. (Electrical parts)	*NOTE
E30	MICROPHONE C.B.A.	701	ELECTORIC CONDENSER MICROPHONE UNIT	*NOTE
		703	MICROPHONE DAMPER	*NOTE
		705	FLEXIBLE FLAT CABLE W/OUT PLUG,4.8V	*NOTE
			Individual parts on MICROPHONE C.B.A. (Electrical parts)	*NOTE
304	CASSETTE COVER UNIT	2	CASSETTE COVER A	*NOTE
		6	CASSETTE COVER B	*NOTE
305	SIDE CASE R UNIT	14	CASSETTE EJECT KNOB	*NOTE
		15	CASSETTE EJECT PIECE	*NOTE
		20	CASSETTE EJECT SPRING	*NOTE
		34	LENS RUBBER	*NOTE
		71	SIDE CASE R,ABS RESIN	*NOTE
		72	TRIPOD FRAME	*NOTE
		76	STRAP ANGLE	*NOTE

13.1.2. Mechanical Replacement Notes

1. **Section No. of parts shown in Exploded Views are indicated in the Remarks column.**
2. **Abbreviation**
   RTL: Retention Time Limited
   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.
3. **Cut Washers (Ref No. 473, 475, and 477) are not reusable. If removed, install a new one.**
4. **Lamp (Ref No. 283) replacement note: / DANGER: Use only**

replacement Lamp (PART NO. LSLL0028) supplied by Panasonic to reduce risk of fire. Handle new Lamp with cloth or tissue as skin oils decrease Lamp life. Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

5. **DEW Sensor (Ref. No. 236) and DEW Cables (Ref. No. 286) replacement note:**
   The DEW Sensor (Ref. No. 236) or DEW Cables (Ref. No. 286) is supplied separately as replacement parts. When replacing the DEW Sensor in early products, be sure to replace both the DEW Sensor and the DEW Cables. Refer to "DEW Sensor, DEW Cable" of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES.
6. **Mechanism Chassis Ass'y (Ref. No. 1) replacement note:**
   When replacing the Mechanism Chassis Ass'y, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.

13.2. MECHANICAL REPLACEMENT PARTS LIST

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

MECHANICAL REPLACEMENT PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	LSXY0349	MECHANISM CHASSIS ASS'Y	1
2	LSKM0797	CASSETTE COVER A	1 *NOTE
5	LSYK0831	MECHANISM BASE UNIT	6
6	LSKM0680	CASSETTE COVER B	1 *NOTE
7	LSMT0071	LENS CUSHION,RUBBER	1
11	LSYK0825	SIDE CASE L UNIT,ABS RESIN (A,B,C,D,E,F,G,H)	1
11	LSYK0826	SIDE CASE L UNIT,ABS RESIN (I,J,K,L)	1
11	LSYK0827	SIDE CASE L UNIT,ABS RESIN (M,N,O)	1
14	LSGT0060	CASSETTE EJECT KNOB	5 *NOTE
15	LSMD0304	CASSETTE EJECT PIECE	5 *NOTE
20	LSMB0198	CASSETTE EJECT SPRING	5 *NOTE
22	LSFL0103	OPTICAL FILTER	3
31	LSYK0850	TOP CASE UNIT,ABS RESIN (A,B,C,D)	4 *NOTE
31	LSYK0851	TOP CASE UNIT,ABS RESIN (E,F,G,H,I,J,K,L)	4 *NOTE
31	LSYK0852	TOP CASE UNIT,ABS RESIN (M,N,O)	4 *NOTE
33	LSGT0061	MAGICVU KNOB	5 *NOTE
34	LSMT0074	LENS RUBBER	5 *NOTE
40	LSMG0106	EYE CAP	4 *NOTE
41	LSMD0770	EVF CASE,ABS RESIN	4 *NOTE
43	LSXA0456	EVF ANGLE UNIT	4 *NOTE
44	LSMD0327	LED HOLDER	4 *NOTE
50	LSYK0854	ELECTRONIC VIEWFINDER UNIT	4 *NOTE
51	LSSC0546	EVF ESD ANGLE	4 *NOTE
52	LSGT0063	EYE SIGHT LEVER B	4 *NOTE
53	LSMB0270	EYE SIGHT LEVER A	4 *NOTE
54	L5BDAXG00003	LIQUID CRYSTAL DISPLAY PANEL	4 *NOTE
55	LSKD0328	LENS HOLDER	4 *NOTE
56	LSFL0134	LENS	4 *NOTE
57	LSDL0212	LED DIFFUSION SHEET,PLASTIC	4 *NOTE
58	LSDL0210	PROTECT PLATE A,PLASTIC	4 *NOTE
59	LSMD0323	EVF PROTECT B	4 *NOTE
60	LSMD0322	EVF PROTECT A	4 *NOTE
63	LSMD0305	MAGICVU KNOB HOLDER	5 *NOTE
65	LSXN0025	LENS UNIT	3
66	LSMG0095	FILTER RUBBER	3
68	LSEM0064	ZOOM MOTOR UNIT	3
69	LSEM0065	FOCUS MOTOR UNIT	3
71	LSKM0788	SIDE CASE R,ABS RESIN	5 *NOTE
72	LSMA0577	TRIPOD FRAME	5 *NOTE
76	LSMA0542	STRAP ANGLE	5 *NOTE
78	L0AA02A00034	SPEAKER	1
80	LSJW0035	FLEXIBLE FLAT CABLE W/OUT PLUG,8V	2
81	LSKM0758	FRONT CASE,ABS RESIN	2 *NOTE
82	LSGL0370	INFRARED PANEL	2 *NOTE
83	LSMD0334	LENS HOOD	2 *NOTE
84	LSGK0093	LENS RING	2 *NOTE
89	LSSC0540	FRONT ESD ANGLE	2 *NOTE
90	VMFW0100	SHEET,NYLON-RAYON	1
94	LSYK0855	LCD CASE A UNIT,ABS RESIN (A,B,C,D,E,F,G,H,I,J,K,L)	5
94	LSYK0856	LCD CASE A UNIT,ABS RESIN (M,N,O)	5
95	LSKM0762	LCD CASE B,ABS RESIN	5
96	LSXA0455	LCD SHAFT UNIT	5
98	LSXY0241	LIQUID CRYSTAL DISPLAY PANEL UNIT	5
99	LSXY0353	LEAD LIGHT PANEL UNIT	5
100	LSXY0205	LAMP UNIT	5
101	LSPF0089	BAG,POLYETHYLENE	7
103	LSPG1281	PACKING CASE,PAPER (A,D)	7

Ref. No.	Part No.	Part Name & Description	Remarks
103	LSPG1282	PACKING CASE,PAPER (B)	7
103	LSPG1283	PACKING CASE,PAPER (C)	7
103	LSPG1284	PACKING CASE,PAPER (E,H)	7
103	LSPG1285	PACKING CASE,PAPER (F)	7
103	LSPG1286	PACKING CASE,PAPER (G)	7
103	LSPG1287	PACKING CASE,PAPER (I,J,K,L)	7
103	LSPG1288	PACKING CASE,PAPER (M,N,O)	7
104	LSTG1296	ACCESSORY PACKING CASE,PAPER	7
105	VFC3506-1A	SHOULDER STRAP	7
106	LSYF0521	LENS CAP UNIT	7
108	LSJA0310	DC CABLE W/PLUG	7
109	K2CR2DA00004	AC CORD W/PLUG (A,B,D,E,F,H,I,J,K,M,N)	7 ⚠
110	DE-855AB	AC ADAPTOR UNIT	7 ⚠
112	LSJA0280	AUDIO/VIDEO CABLE W/PLUG	7
113	LSSQ0336	INFRARED REMOTE CONTROL UNIT	7
115	K1HA05CD0001	UNIVERSAL SERIAL BUS CABLE W/PLUG (M,N,O)	7
116	K1HB09BZ0001	PC CONNECTION CABLE W/PLUG (I,J,K,L)	7
118	RP-SD008BMK0	SD MEMORY CARD (M,N,O)	7
119	LSFT0494	APPLICATION SOFTWARE CD-ROM (I,J,K,L)	7
119	LSFT0496	APPLICATION SOFTWARE CD-ROM (M,N,O)	7
120	VQT9687	INSTRUCTION BOOK (A,E)	7 ⚠ ;
120	VQT9689	INSTRUCTION BOOK (B,F)	7 ⚠
120	VQT9691	INSTRUCTION BOOK (C,G)	7 ⚠
120	VQT9693	INSTRUCTION BOOK (I,J,K,M,N)	7 ⚠
120	VQT9695	INSTRUCTION BOOK (L,O)	7 ⚠
120	VQT9703	INSTRUCTION BOOK (D,H)	7 ⚠
122	LSGQ0066	HOOD STRAP	7
126	VFK1451	DVC HEAD CLEANING TAPE (I,J,K,L,M,N,O)	7
127	VJA0940	AC CORD W/PLUG (C,G,I,J,K,M,N)	7 ⚠
128	K2CJ2DA00002	AC CORD W/PLUG (L,O)	7 ⚠
128	VJA1068	AC CORD W/PLUG (L,O)	7 ⚠
129	VQT9696	INSTRUCTION CD-ROM (I,J,K)	7 ⚠
129	VQT9697	INSTRUCTION CD-ROM (L)	7 ⚠
129	VQT9701	INSTRUCTION CD-ROM (M,N)	7 ⚠
129	VQT9702	INSTRUCTION CD-ROM (O)	7 ⚠
130	VQF8863	FAN BAG (A,E)	7 ⚠
130	VQF8864	FAN BAG (B,F)	7 ⚠
130	VQF8865	FAN BAG (C,G)	7 ⚠
130	VQF8866	FAN BAG (D,H)	7 ⚠
130	VQF8867	FAN BAG (I,J,K)	7 ⚠
130	VQF8868	FAN BAG (L)	7 ⚠
130	VQF8869	FAN BAG (M,N)	7 ⚠
130	VQF8870	FAN BAG (O)	7 ⚠
201	LSEG0043	CYLINDER UNIT	6
202	LSEM0061	CAPSTAN UNIT	6
203	LSMD0185	RAIL	6
204	LSDG0092	REDUCTION GEAR B	6
205	LSSR0004	MODE SWITCH	6
206	LSDG0093	CAM GEAR	6

Ref. No.	Part No.	Part Name & Description	Remarks
207	LSDG0094	INTERMEDIATE GEAR	6
208	LSMB0180	CAPSTAN ADJUST SPRING	6
209	LSDV0006	TIMING BELT	6
210	LSDG0095	DRIVE PULLEY	6
211	LSDG0096	CENTER GEAR	6
212	LSMA0364	T4 DRIVE ARM	6
213	LSML0099	TENSION DRIVE ARM	6
214	LSML0100	S BRAKE DRIVE LEVER	6
215	VXLS1122	LOCK LEVER UNIT	6
216	LSML0102	LOCK PICK LEVER	6
217	LSMD0186	GUIDE PIECE R	6
218	LSMD0187	GUIDE PIECE L	6
219	LSXP0018	DAMPER UNIT	6
220	LSSH0001	MEMORY IN CASSETTE SWITCH	6
221	LSMA0365	PINCH DRIVE ARM	6
223	VXLS1115	MAIN PLATE UNIT	6
224	LSEK0433	MECHANISM FLEXIBLE PRINTED CIRCUIT UNIT	6
225	LSEK0431	SENSOR FLEXIBLE PRINTED CIRCUIT UNIT	6
226	VEMS0335	LOADING MOTOR UNIT	6
228	VXLS1116	TENSION ARM UNIT	6
229	LSXL0085	T BRAKE UNIT	6
230	VXDS0215	MECHANISM COVER UNIT	6
231	VXLS1084	IDLER ARM UNIT	6
232	LSXR0002	S REEL TABLE	6
233	LSXR0003	T REEL TABLE	6
234	VXLS1123	PINCH ARM UNIT	6
235	VXAS4418	GARAGE UNIT	6
236	LSJB8181	DEW SENSOR	6
237	VMFW0045	SHEET,NYLON-RAYON	6
241	LSXD0017	CYLINDER BASE UNIT	6
242	LSXD0021	S POST UNIT	6
242	VXDS0210	S POST UNIT	6
243	VXLS1118	S ARM UNIT	6
244	LSXD0020	T POST UNIT	6
244	VXDS0209	T POST UNIT	6
245	VXLS1119	T ARM UNIT	6
261	LSKM0769	FRONT COVER	5 *NOTE
267	LSMB0274	LCD LOCK KNOB SPRING	5 *NOTE
268	LSGU0529	LCD LOCK KNOB	5 *NOTE
272	LSKF0433	EVR COVER	1
273	LSQL1307	LIGHT CAUTION LABEL	1
274	LSMD0326	EVF MASK	4 *NOTE
276	LSDL0211	PROTECT PLATE B,PLASTIC	4 *NOTE
277	LSJB8170	TOP FLEXIBLE PRINTED CIRCUIT	4 *NOTE
278	LSEK0450	SPEAKER CABLE W/PLUG,4.8V	1
280	LSMG0108	DAMPER RUBBER	6
281	LSGF0050	LIGHT PROTECOTR	2
282	LSMR0008	LIGHT REFLECTOR	2
283	LSLL0028	LAMP	2 ⚠
284	LSEK0409	LAMP SOCKET UNIT	2
285	LSGB0031	MULTI MEDIA CARD BADGE (M,N,O)	1
286	LSEU03B55UU	DEW CABLE W/OUT PLUG,1V	6
287	LSMT0075	MASK CUSHION,URETHANE	4 *NOTE
288	LSMF0214	SHEET,NYLON-RAYON	4 *NOTE
289	LSMT0370	CUSHION,RUBBER	4 *NOTE
290	LSMT0076	CUSHION,RUBBER	2

Ref. No.	Part No.	Part Name & Description	Remarks
301	LSYK0837	FRONT CASE UNIT,ABS RESIN	2
302	LSYK0839	FRONT COVER UNIT	5
303	LSYK0861	TOP/ELECTRONIC VIEWFINDER UNIT (A,B,C,D)	4
303	LSYK0862	TOP/ELECTRONIC VIEWFINDER UNIT (E,F,G,H,I,J,K,L)	4
303	LSYK0863	TOP/ELECTRONIC VIEWFINDER UNIT (M,N,O)	4
304	LSYK0845	CASSETTE COVER UNIT	1
305	LSYK0843	SIDE CASE R UNIT,ABS RESIN	5
402	XQN2+BJ4FXK	SCREW,STEEL	4,5
403	XQN2+BF4FXK	SCREW,STEEL	5
404	XQN2+BJ5FXK	SCREW,STEEL	1,2,4,5
407	XQN2+BF4FN	SCREW,STEEL	4 *NOTE
413	LSHD0051	SCREW,STEEL	6
416	XQN2+BJ3FXK	SCREW,STEEL	4
422	XQN16+CJ5FY	SCREW,STEEL	3
429	XQN14+B35	SCREW,STEEL	6
432	XQN14+B2	SCREW,STEEL	6
471	XQN14+B35FNK	SCREW,STEEL	6
473	VMX2026	CUT WASHER,STEEL	6
475	VMX2750	CUT WASHER,STEEL	6
477	VMX2028	CUT WASHER,STEEL	6
478	XQN14+B12FN	SCREW,STEEL	6
503	LSHD0073	SCREW,STEEL	6
504	XQN2+B35	SCREW,STEEL	6
507	XQN14+BJ4	SCREW,STEEL	3
509	XQN2+BF8FN	SCREW,STEEL	5
510	XQN2+BF5FXK	SCREW,STEEL	1
701	LSEK0447	ELECTORIC CONDENSER MICROPHONE UNIT	4 *NOTE
703	LSMG0111	MICROPHONE DAMPER	4 *NOTE
705	LSJW0033	FLEXIBLE FLAT CABLE W/OUT PLUG,4.8V	4 *NOTE
721	VMZW0660	INSULATION SHEET,PLASTIC	5
731	LSSB0004	BATTERY	1
735	LSEP8172A1	SD HOLDER UNIT NR (M,N,O)	1
E10	LSEP8165P1	MAIN C.B.A. (A,B,C,D)	1
E10	LSEP8165Q1	MAIN C.B.A. (E,F,G,H)	1
E10	LSEP8165R1	MAIN C.B.A. (I,J,K,L)	1
E10	LSEP8165S1	MAIN C.B.A. (M,N,O)	1
E20	LSEP8183P1	REAR C.B.A. (A,B,C,D,E,F,G,H,I,J,K,L)	1 RTL
E20	LSEP8183Q1	REAR C.B.A. (M,N,O)	1 RTL
E30	LSXM0024	MICROPHONE C.B.A.	4 RTL
E40	LSEP8193A1	FRONT C.B.A.	2 RTL
E50	LSEP8169B1	ELECTRONIC VIEWFINDER BACK LIGHT C.B.A.	4 RTL *NOTE
E60	LSEP8188B1	LIQUID CRYSTAL DISPLAY C.B.A.	5 RTL
E70	LSEQ0639	CCD C.B.A. NR	3
E80	LSEP8177C1	TOP OPERATION C.B.A. NR	4

SERVICE FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
	VFM3010EDS	COLOR BAR STANDARD TAPE	VED
	VFK1451	DVC HEAD CLEANING TAPE	VED
	LSVQ0041	TAPE PATH ALIGNMENT TAPE	
	LSVQ0028	PLIER FOR NON ZIF CONNECTOR	
	VFKW0124A	EXTENSION CABLE 14P	
	VUVS0012	EXTENSION CABLE 22P	
	LSUA0017	EXTENSION CABLE 18P	
	LSUA0016	EXTENSION CABLE 10P	
	VUVS0007	EXTENSION CABLE 12P	
	VUVS0015	EXTENSION CABLE 28P	
	LSUA0030	EXTENSION CABLE 11P	
	LSUA0020	EXTENSION CABLE 20P	
	LSVQ0020	CAPSTAN TILT ADJUSTMENT TOOL	
	LSUQ0002	GREASE	
	VFKS0081	GREASE	
	VFK1164LBX1	LIGHT BOX	VED
	VFK1164TCM02	INFINITY LENS (WITH FOCUS CHART)	VED
	VFK1164TAR43	43mm RING	VED
	VFK1164TFCT2	COLOR CONVERSION FILTER (C14)	VED
	LSVQ0021	POST HEIGHT ADJUSTMENT FIXTURE	
	LSUP0017	CAMERA CONNECTING CABLE	
	VFK1395	232C(M3) I/F CABLE	VED
	VFK1308E	MEASURING BOARD FOR ELECTRICAL ADJUSTMENT	VED
	VJA0941	DC OUTPUT CABLE	VED
	VFK1164TFWC2	WHITE CHART	VED
	VFK1164TFCB2	COLOR BAR CHART	VED
	VFK1164TFGS2	GRAY SCALE CHART	VED

13.3. ELECTRICAL REPLACEMENT PARTS LIST

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E10	LSEP8165P1	MAIN C.B.A. (A,B,C,D)	E.S.D.
E10	LSEP8165Q1	MAIN C.B.A. (E,F,G,H)	E.S.D.
E10	LSEP8165R1	MAIN C.B.A. (I,J,K,L)	E.S.D.
E10	LSEP8165S1	MAIN C.B.A. (M,N,O)	E.S.D.
E20	LSEP8183P1	REAR C.B.A. (A,B,C,D,E,F,G,H,I,J,K,L)	E.S.D. RTL
E20	LSEP8183Q1	REAR C.B.A. (M,N,O)	RTL
E30	LSXM0024	MICROPHONE C.B.A.	RTL
E40	LSEP8193A1	FRONT C.B.A.	RTL
E50	LSEP8169B1	ELECTRONIC VIEWFINDER BACK LIGHT C.B.A.	RTL *NOTE
E60	LSEP8188B1	LIQUID CRYSTAL DISPLAY C.B.A.	RTL
E70	LSEQ0639	CCD C.B.A. NR	
E80	LSEP8177C1	TOP OPERATION C.B.A. NR	

13.3.1. REAR C.B.A.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC6701	C0ZBZ0000275	IC, LINEAR (A,B,C,D,E,F,G,H,I,J,K,L)	
IC6701	C0ZBZ0000540	IC, LINEAR (A,B,C,D,E,F,G,H,I,J,K,L)	
IC6701	C1ZBZ0001923	IC, LINEAR (A,B,C,D,E,F,G,H,I,J,K,L)	
IC6702	S814A33AMC-B	IC, CMOS STANDARD LOGIC (A,B,C,D,E,F,G,H,I,J,K,L)	E.S.D.

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1201	RD12S-T1B	DIODE ZENER CHIP 12V	
D1202	RD12S-T1B	DIODE ZENER CHIP 12V	
D6701	MA2S728008	DIODE SI CHIP (A,B,C,D,E,F,G,H,I,J,K,L)	
D6701	B0JCDD000002	DIODE SI CHIP (A,B,C,D,E,F,G,H,I,J,K,L)	
D6701	MA2S72800L	DIODE SI CHIP (A,B,C,D,E,F,G,H,I,J,K,L)	
D7001	B0BD6R800009	DIODE ZENER CHIP 6.8V	
D7002	B0BD6R800009	DIODE ZENER CHIP 6.8V	
D7003	B0BD6R800009	DIODE ZENER CHIP 6.8V	
D7004	RD6.2S	DIODE ZENER CHIP 6.2V	
D7005	B0BD6R800009	DIODE ZENER CHIP 6.8V	
D7006	RD6.2S	DIODE ZENER CHIP 6.2V	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R6703	LSRJ0002	VARIABLE RESISTOR (A,B,C,D,E,F,G,H,I,J,K,L)	
R6704	LSRJ0002	VARIABLE RESISTOR (A,B,C,D,E,F,G,H,I,J,K,L)	
R6706	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
R6707	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
R7001	ERJ3GEYJ331V	MGF CHIP 1/16W 330	
R7003	ERJ3GEYJ561V	MGF CHIP 1/16W 560	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C1201	ECJ1VF1H103Z	C CHIP 50V 0.01UF	
C1202	ECJ1VF1H103Z	C CHIP 50V 0.01UF	
C6701	F1J1A1050002	C CHIP 10V 1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6702	ECJ1VB1C104K	C CHIP 16V 0.1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6703	ECJ1VB1C104K	C CHIP 16V 0.1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6704	ECJ1VB1C104K	C CHIP 16V 0.1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6705	ECJ1VB1C104K	C CHIP 16V 0.1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6706	ECJ2YB1A105K	C CHIP 10V 1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6708	ECJ2YB1A105K	C CHIP 10V 1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C7001	ECJ1VB1H472K	C CHIP 50V 4700PF	
C7002	ECJ1VB1H472K	C CHIP 50V 4700PF	

FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL1201	J0MAB0000062	FILTER	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L6701	ERJ3GEYJ821V	MGF CHIP 1/16W 820 (A,B,C,D,E,F,G,H,I,J,K,L)	
L6702	ERJ3GEYJ821V	MGF CHIP 1/16W 820 (A,B,C,D,E,F,G,H,I,J,K,L)	
L6703	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (A,B,C,D,E,F,G,H,I,J,K,L)	
L6704	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
L6705	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
L6706	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
L6707	VLQ0807K100	COIL CHIP 10UH (A,B,C,D,E,F,G,H,I,J,K,L)	
L7001	J0JBC0000027	FERRITE BEAD CHIP	
L7002	J0JBC0000027	FERRITE BEAD CHIP	
L7003	J0JBC0000027	FERRITE BEAD CHIP	
L7004	J0JBC0000027	FERRITE BEAD CHIP	
L7005	J0JBC0000027	FERRITE BEAD CHIP	

FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
IP1201	K5H2022A0008	CIRCUIT PROTECTOR CHIP 32V 2A	⚠
IP1202	K5H1022A0008	CIRCUIT PROTECTOR CHIP 32V 1A	⚠

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW1201	ESE22MH4	SWITCH PUSH	

JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK6701	K2HZ105E0001	USB MINI JACK SOCKET (M,N,O)	
JK6703	LSJJ0187	MINI JACK SOCKET (A,B,C,D,E,F,G,H,I,J,K,L)	
JK7001	LSYK0830	BATTERY COVER UNIT	
JK7003	K1FB104B0026	DV JACK SOCKET	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
731	LSSB0004	BATTERY	

13.3.2. MICROPHONE C.B.A.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q4801	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4801	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE
Q4802	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4802	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE
Q4803	2SB1218A0L	TRANSISTOR SI PNP CHIP	*NOTE
Q4803	B1ADCF000063	TRANSISTOR SI PNP CHIP	*NOTE
Q4805	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4805	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE
Q4806	2SB1218A0L	TRANSISTOR SI PNP CHIP	*NOTE
Q4806	B1ADCF000063	TRANSISTOR SI PNP CHIP	*NOTE
Q4808	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4808	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE
Q4809	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4809	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4803	MA3J14300L	DIODE SI CHIP	*NOTE
D4803	B0ADCC000004	DIODE SI CHIP	*NOTE

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4801	D0HB392ZA002	MGF CHIP 1/16W 3.9K	*NOTE
R4802	D0HB392ZA002	MGF CHIP 1/16W 3.9K	*NOTE
R4803	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	*NOTE
R4804	ERJ3GEYJ363V	MGF CHIP 1/16W 36K	*NOTE
R4805	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	*NOTE
R4806	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	*NOTE
R4807	ERJ3GEYJ363V	MGF CHIP 1/16W 36K	*NOTE
R4808	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	*NOTE
R4809	ERJ3GEYJ471V	MGF CHIP 1/16W 470	*NOTE
R4810	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	*NOTE
R4811	D0HB154ZA002	MGF CHIP 1/16W 150K	*NOTE
R4812	D0HB563ZA002	MGF CHIP 1/16W 56K	*NOTE
R4813	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	*NOTE
R4814	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	*NOTE
R4815	ERJ3GEYJ151V	MGF CHIP 1/16W 150	*NOTE
R4817	ERJ3GEYJ471V	MGF CHIP 1/16W 470	*NOTE
R4818	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	*NOTE
R4819	D0HB154ZA002	MGF CHIP 1/16W 150K	*NOTE
R4820	D0HB563ZA002	MGF CHIP 1/16W 56K	*NOTE
R4821	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	*NOTE
R4822	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	*NOTE
R4823	ERJ3GEYJ151V	MGF CHIP 1/16W 150	*NOTE
R4825	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	*NOTE
R4827	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE
R4830	ERJ3GEYJ563V	MGF CHIP 1/16W 56K	*NOTE
R4831	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	*NOTE
R4832	ERJ3GEYJ563V	MGF CHIP 1/16W 56K	*NOTE
R4833	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	*NOTE
R4837	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE
R4838	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4801	ECJ1VB1H102K	C CHIP 50V 1000PF	*NOTE
C4802	ECJ1VB1H102K	C CHIP 50V 1000PF	*NOTE
C4803	ECJ1VB1C273K	C CHIP 16V 0.027UF	*NOTE
C4804	ECJ1VB1C273K	C CHIP 16V 0.027UF	*NOTE
C4805	F1J1A1050002	C CHIP 10V 1UF	*NOTE
C4806	ECJ1VB1H102K	C CHIP 50V 1000PF	*NOTE
C4807	ECST0GY226	TANTALUM CHIP 4V 22UF	*NOTE
C4808	F1J1A1050002	C CHIP 10V 1UF	*NOTE
C4809	ECJ1VB1H102K	C CHIP 50V 1000PF	*NOTE
C4810	ECST0GY226	TANTALUM CHIP 4V 22UF	*NOTE
C4811	ECST0JY226R	TANTALUM CHIP 6.3V 22UF	*NOTE
C4812	ECJ1VB1H103K	C CHIP 50V 0.01UF	*NOTE
C4813	ECJ1VB1H821K	C CHIP 50V 820PF	*NOTE
C4814	ECJ1VB1H821K	C CHIP 50V 820PF	*NOTE
C4815	ECJ1VB1E223K	C CHIP 25V 0.022UF	*NOTE
C4816	ECJ1VB1E223K	C CHIP 25V 0.022UF	*NOTE
C4817	F1J1A1050002	C CHIP 10V 1UF	*NOTE
C4818	F1J1A1050002	C CHIP 10V 1UF	*NOTE
C4819	ECJ1VB1H222K	C CHIP 50V 0.0022UF	*NOTE
C4820	ECJ1VB1H222K	C CHIP 50V 0.0022UF	*NOTE
C4821	ECUE1C104ZFV	C CHIP 16V 0.1UF	*NOTE

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L4801	J0JBC0000036	FERRITE BEAD CHIP	*NOTE
L4802	J0JBC0000036	FERRITE BEAD CHIP	*NOTE

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP4801	K1MN07B00022	CONNECTOR 7P	*NOTE

JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK4801	K2HC104B0017	STERO MICROPHONE JACK SOCKET	*NOTE

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
701	LSEK0447	ELECTORIC CONDENSER MICROPHONE UNIT	*NOTE
703	LSMG0111	MICROPHONE DAMPER	*NOTE
705	LSJW0033	FLEXIBLE FLAT CABLE W/OUT PLUG,4.8V	*NOTE

13.3.3. FRONT C.B.A.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q6501	XP0150100L	TRANSISTOR COMPLX CMP SI NPN CHIP	*NOTE
Q6502	B1BCEF000003	TRANSISTOR SI PNP CHIP	*NOTE

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D6502	SLR7123A50AB	LIGHT EMITTING DIODE	*NOTE

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R6501	ERJ3GEYJ560V	MGF CHIP 1/16W 56	*NOTE
R6502	ERJ8GEYJ270V	MGF CHIP 1/8W 27	*NOTE
R6503	D0HB122ZA002	MGF CHIP 1/16W 1.2K	*NOTE
R6504	D0HB562ZA002	MGF CHIP 1/16W 5.6K	*NOTE
R6505	D0HB122ZA002	MGF CHIP 1/16W 1.2K	*NOTE
R6506	ERJ3GEYJ821V	MGF CHIP 1/16W 820	*NOTE

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C6501	ECST0JY106	TANTALUM CHIP 6.3V 10UF	*NOTE
C6502	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE
C6503	ECJ1VB1C104K	C CHIP 16V 0.1UF	*NOTE

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P6501	K1KA03A00304	CONNECTOR 3P	*NOTE

FPC CONNECTRO

Ref. No.	Part No.	Part Name & Description	Remarks
FP6501	K1MN10A00030	CONNECTOR 10P	*NOTE

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
U6501	B3RAD0000039	INFRARED RECEOVER	*NOTE

13.3.4. ELECTRONIC VIEWFINDER BACK LIGHT C.B.A.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q951	2SD2216J0L	TRANSISTOR SI NPN CHIP	*NOTE
Q951	2SC4617-R	TRANSISTOR SI NPN CHIP	*NOTE

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D951	B3AFB0000016	LIGHT EMITTING DIODE	*NOTE

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R951	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE
R952	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE
R953	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	*NOTE
R954	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	*NOTE
R955	ERJ3GEYJ101V	MGF CHIP 1/16W 100	*NOTE
R956	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	*NOTE
R957	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C952	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE
C953	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE
C954	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE
C955	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP951	K1MN19B00052	CONNECTOR 19P	*NOTE
FP952	K1MN20B00085	CONNECTOR 20P	*NOTE

13.3.5. LIQUID CRYSTAL DISPLAY C.B.A.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC8001	AN2540FHQ-V	IC, LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q8001	UNR521200L	TRANSISTOR SI NPN CHIP	
Q8001	B1GBCFLL0012	TRANSISTOR SI NPN CHIP	
Q8002	2SB1462J08	TRANSISTOR SI PNP CHIP	
Q8002	B1ADCF000072	TRANSISTOR SI PNP CHIP	
Q8003	UNR521200L	TRANSISTOR SI NPN CHIP	
Q8003	B1GBCFLL0012	TRANSISTOR SI NPN CHIP	
Q8004	2SB1462J08	TRANSISTOR SI PNP CHIP	
Q8004	B1ADCF000072	TRANSISTOR SI PNP CHIP	
Q8005	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8005	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q8006	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8006	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q8007	UNR521200L	TRANSISTOR SI NPN CHIP	
Q8007	B1GBCFLL0012	TRANSISTOR SI NPN CHIP	
Q8008	2SB1462J08	TRANSISTOR SI PNP CHIP	
Q8008	B1ADCF000072	TRANSISTOR SI PNP CHIP	
Q8009	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8009	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q8010	UNR511400L	TRANSISTOR SI PNP CHIP	
Q8010	B1GDCFJN0011	TRANSISTOR SI PNP CHIP	
Q8011	UNR521200L	TRANSISTOR SI NPN CHIP	
Q8011	B1GBCFLL0012	TRANSISTOR SI NPN CHIP	
Q8012	XP0460100L	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8012	HN1B04FU-GTR	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8014	XP0460100L	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8014	HN1B04FU-GTR	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8104	2SD11190RL	TRANSISTOR SI NPN CHIP	
Q8104	B1ABPC000007	TRANSISTOR SI NPN CHIP	
Q8105	2SD11190RL	TRANSISTOR SI NPN CHIP	
Q8105	B1ABPC000007	TRANSISTOR SI NPN CHIP	
Q8106	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8106	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q8107	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8107	B1ABCF000020	TRANSISTOR SI NPN CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D8001	MAZ80680LL	DIODE ZENER CHIP 6.8V	
D8101	MA3J741E0L	DIODE SI CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R8001	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8003	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8004	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8005	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8006	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8007	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8008	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8009	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8010	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8011	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8012	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8013	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8014	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8016	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R8017	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8019	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	
R8021	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8022	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	
R8023	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8024	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R8025	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R8027	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8028	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8029	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8034	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8035	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8036	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8037	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8038	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R8039	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R8040	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8044	ERJ3GEYJ274V	MGF CHIP 1/16W 270K	
R8045	ERJ3GEYJ124V	MGF CHIP 1/16W 120K	
R8046	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8047	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8049	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8104	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	
R8105	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8106	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8108	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8109	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8110	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8111	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C8001	ECJ2YB1C474K	C CHIP 16V 0.47UF	
C8002	ECUV0J105KBV	C CHIP 6.3V 1UF	
C8003	ECUV0J105KBV	C CHIP 6.3V 1UF	
C8004	ECUV0J105KBV	C CHIP 6.3V 1UF	
C8005	F3F0J226A001	ELECTROLYTIC CHIP 6.3V 22UF	
C8006	ECUE1H103KBV	C CHIP 50V 0.01UF	
C8007	F1K1C105A023	C CHIP 16V 1UF	
C8008	ECJ1VB1C104K	C CHIP 16V 0.1UF	
C8009	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8010	ECST0JY106	TANTALUM CHIP 6.3V 10UF	
C8011	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8012	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8013	ECJ1VB1H152K	C CHIP 50V 0.0015UF	
C8014	ECJ2YB0J225K	C CHIP 6.3V 2.2UF	
C8015	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8016	F1K1C2250005	C CHIP 16V 2.2UF	
C8017	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8019	ECJ1VB1C104K	C CHIP 16V 0.1UF	
C8021	ECJ1VC1H471J	C CHIP 50V 470PF	
C8022	ECJ1VC1H471J	C CHIP 50V 470PF	
C8023	ECJ1VC1H471J	C CHIP 50V 470PF	
C8107	ECUV1A106KBP	C CHIP 10V 10UF	
C8108	ECHU1H333JB5	POLYESTER CHIP 50V 0.033UF	
C8109	LSCUCAD150J	C CHIP 2KV 15PF	
C8110	LSCUCAD220J	C CHIP 2KV 22PF	
C8113	ECJ1VB1C104K	C CHIP 16V 0.1UF	
C8114	ECUV0J105KBV	C CHIP 6.3V 1UF	
C8115	ECST0JY106	TANTALUM CHIP 6.3V 10UF	
C8116	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8117	F1J1C1050011	C CHIP 16V 1UF	
C8118	ECJ1VF1C104Z	C CHIP 16V 0.1UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L8001	G1C150J00005	COIL CHIP 15UH	
L8002	G1C150J00005	COIL CHIP 15UH	
L8003	G1C150J00005	COIL CHIP 15UH	
L8004	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
L8005	G1C150J00005	COIL CHIP 15UH	
L8103	G1C680M00005	CHOKE COIL	
L8104	G1A100ZA0002	CHOKE COIL 10UH	

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP8001	K1MN25B00037	CONNECTOR 25P	
FP8002	K1MN24B00077	CONNECTOR 24P	

FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
PR8101	K5H1022A0008	CIRCUIT PROTECTOR CHIP 32V 1A	

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T8101	ETJ11K94AM	TRANSFORMER	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
721	VMZW0660	INSULATION SHEET,PLASTIC	

13.3.6. ELECTRICAL PARTS LOCATED ON CHASSIS

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

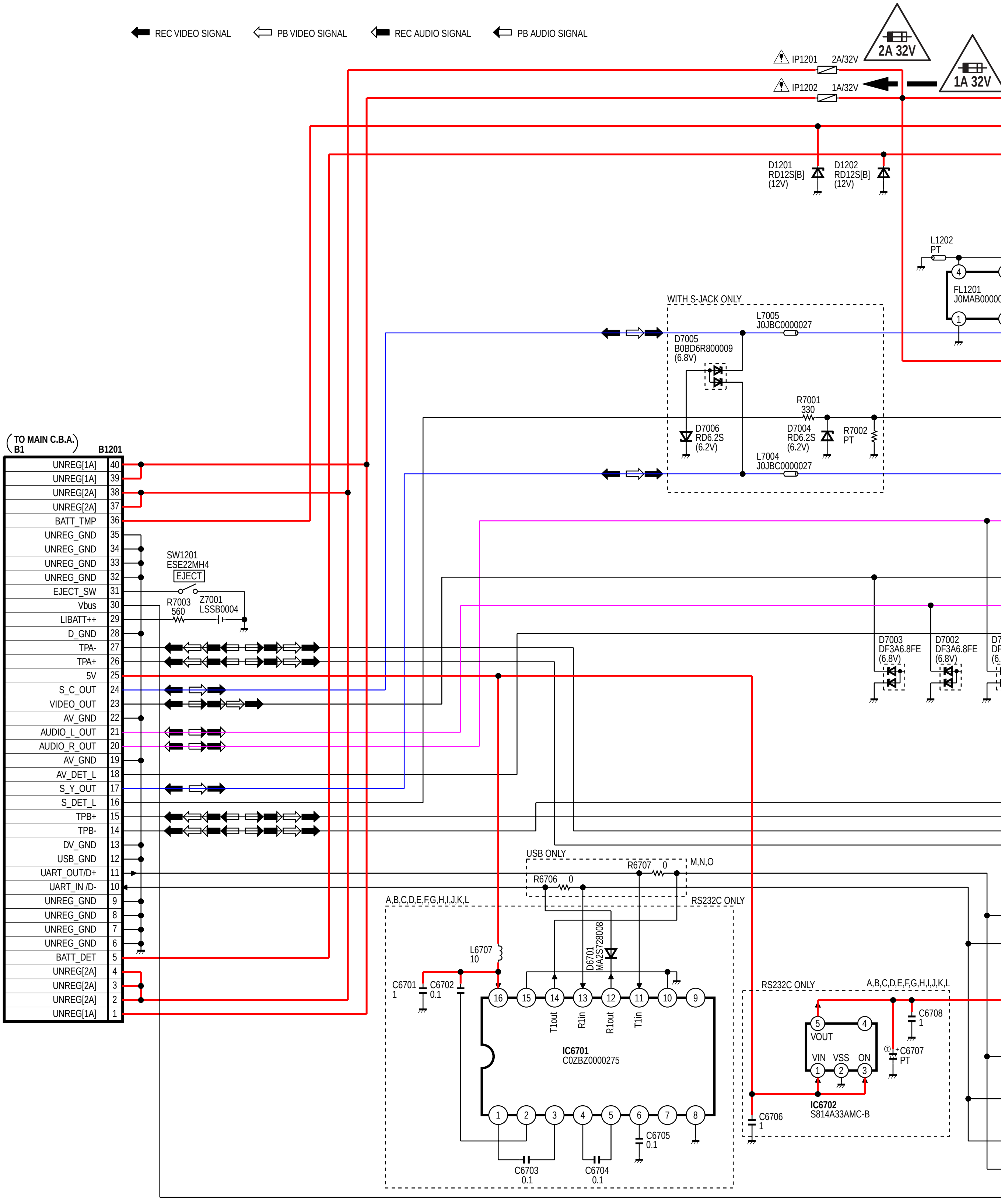
Ref. No.	Part No.	Part Name & Description	Remarks
735	LSEP8172A1	SD HOLDER UNIT NR (M,N,O)	

14. SCHEMATIC DIAGRAMS FOR PRINTING WITH LETTER SIZE

8.3. REAR SCHEMATIC DIAGRAM

REAR SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts
Do not use the part number on this diagram.

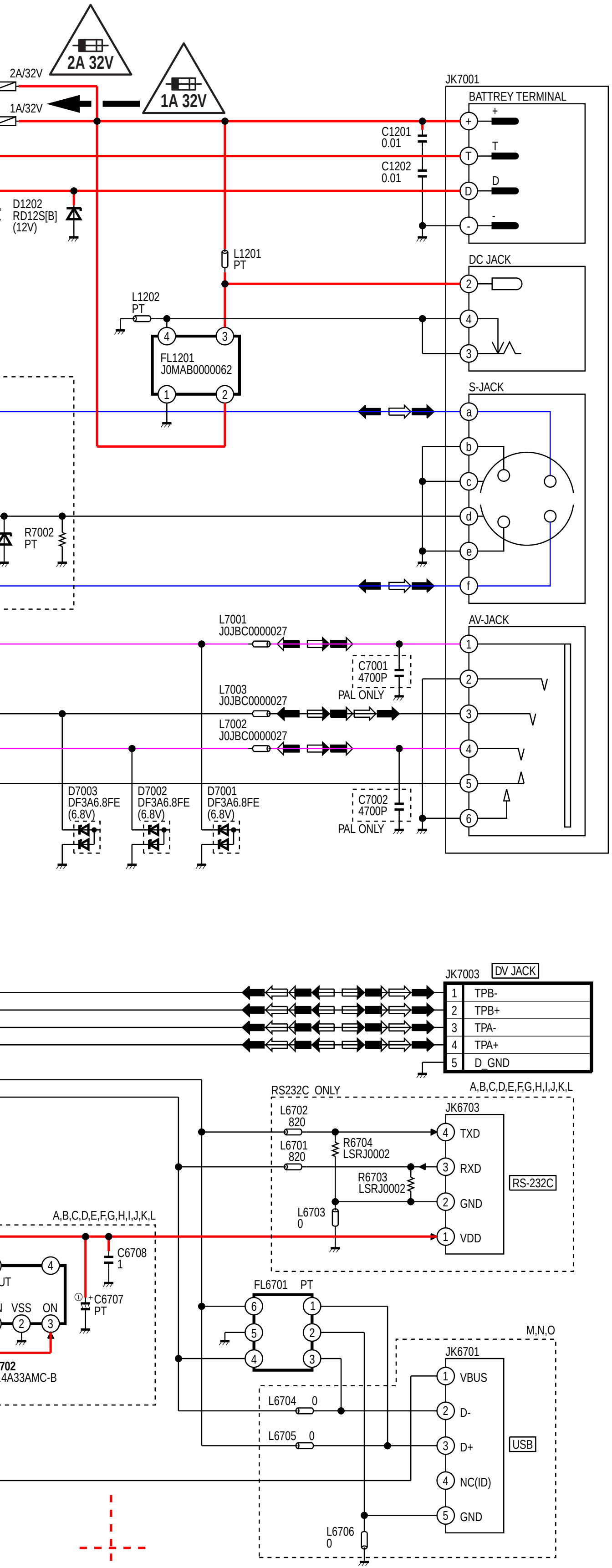


REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL
2A 32V
1A 32V
IP1201 2A/32V
IP1202 1A/32V
D1201 RD12S[B] (12V)
D1202 RD12S[B] (12V)
L1202 PT
FL1201 J0MAB0000
WITH S-JACK ONLY
L7005 J0JBC0000027
D7005 B0BD6R800009 (6.8V)
R7001 330
D7006 RD6.2S (6.2V)
D7004 RD6.2S (6.2V)
R7002 PT
L7004 J0JBC0000027
TO MAIN C.B.A. B1
B1201
UNREG[1A] 40
UNREG[1A] 39
UNREG[2A] 38
UNREG[2A] 37
BATT_TMP 36
UNREG_GND 35
UNREG_GND 34
UNREG_GND 33
UNREG_GND 32
EJECT_SW 31
Vbus 30
LIBATT++ 29
D_GND 28
TPA- 27
TPA+ 26
5V 25
S_C_OUT 24
VIDEO_OUT 23
AV_GND 22
AUDIO_L_OUT 21
AUDIO_R_OUT 20
AV_GND 19
AV_DET_L 18
S_Y_OUT 17
S_DET_L 16
TPB+ 15
TPB- 14
DV_GND 13
USB_GND 12
UART_OUT/D+ 11
UART_IN /D- 10
UNREG_GND 9
UNREG_GND 8
UNREG_GND 7
UNREG_GND 6
BATT_DET 5
UNREG[2A] 4
UNREG[2A] 3
UNREG[2A] 2
UNREG[1A] 1
SW1201 ESE22MH4 EJECT
R7003 560
Z7001 LSSB0004
D7003 DF3A6.8FE (6.8V)
D7002 DF3A6.8FE (6.8V)
USB ONLY
R6707 0
M,N,O
R6706 0
A,B,C,D,E,F,G,H,I,J,K,L
RS232C ONLY
L6707 10
D6701 MA2S728008
C6701 1
C6702 0.1
T1out R1in R1out T1in
IC6701 C0ZBZ0000275
C6703 0.1
C6704 0.1
C6705 0.1
RS232C ONLY
A,B,C,D,E,F,G,H,I,J,K,L
C6708 1
VOUT
VIN VSS ON
C6707 PT
IC6702 S814A33AMC-B
C6706 1

rchase order of the parts,
e part number listed in the parts list.
art number on this diagram.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



2A 32V
1A 32V
2A/32V
1A/32V
D1202
RD12S[B]
(12V)
C1201
0.01
C1202
0.01
L1201
PT
L1202
PT
FL1201
J0MAB0000062
JK7001
BATTREY TERMINAL
+
T
D
-
DC JACK
S-JACK
a
b
c
d
e
f
R7002
PT
AV-JACK
L7001
J0JBC0000027
C7001
4700P
PAL ONLY
L7003
J0JBC0000027
L7002
J0JBC0000027
D7003
DF3A6.8FE
(6.8V)
D7002
DF3A6.8FE
(6.8V)
D7001
DF3A6.8FE
(6.8V)
C7002
4700P
PAL ONLY
JK7003
DV JACK
TPB-
TPB+
TPA-
TPA+
D_GND
RS232C ONLY
A,B,C,D,E,F,G,H,I,J,K,L
L6702
820
L6701
820
R6704
LSRJ0002
R6703
LSRJ0002
L6703
0
JK6703
TXD
RXD
GND
VDD
RS-232C
A,B,C,D,E,F,G,H,I,J,K,L
C6708
1
C6707
PT
UT
VSS
ON
702
4A33AMC-B
FL6701 PT
M,N,O
JK6701
VBUS
D-
D+
NC(ID)
GND
USB
L6704 0
L6705 0
L6706
0

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O
Not Used	PT

LSJB8183
REAR SCHEMATIC DIAGRAM
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/
NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/
NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

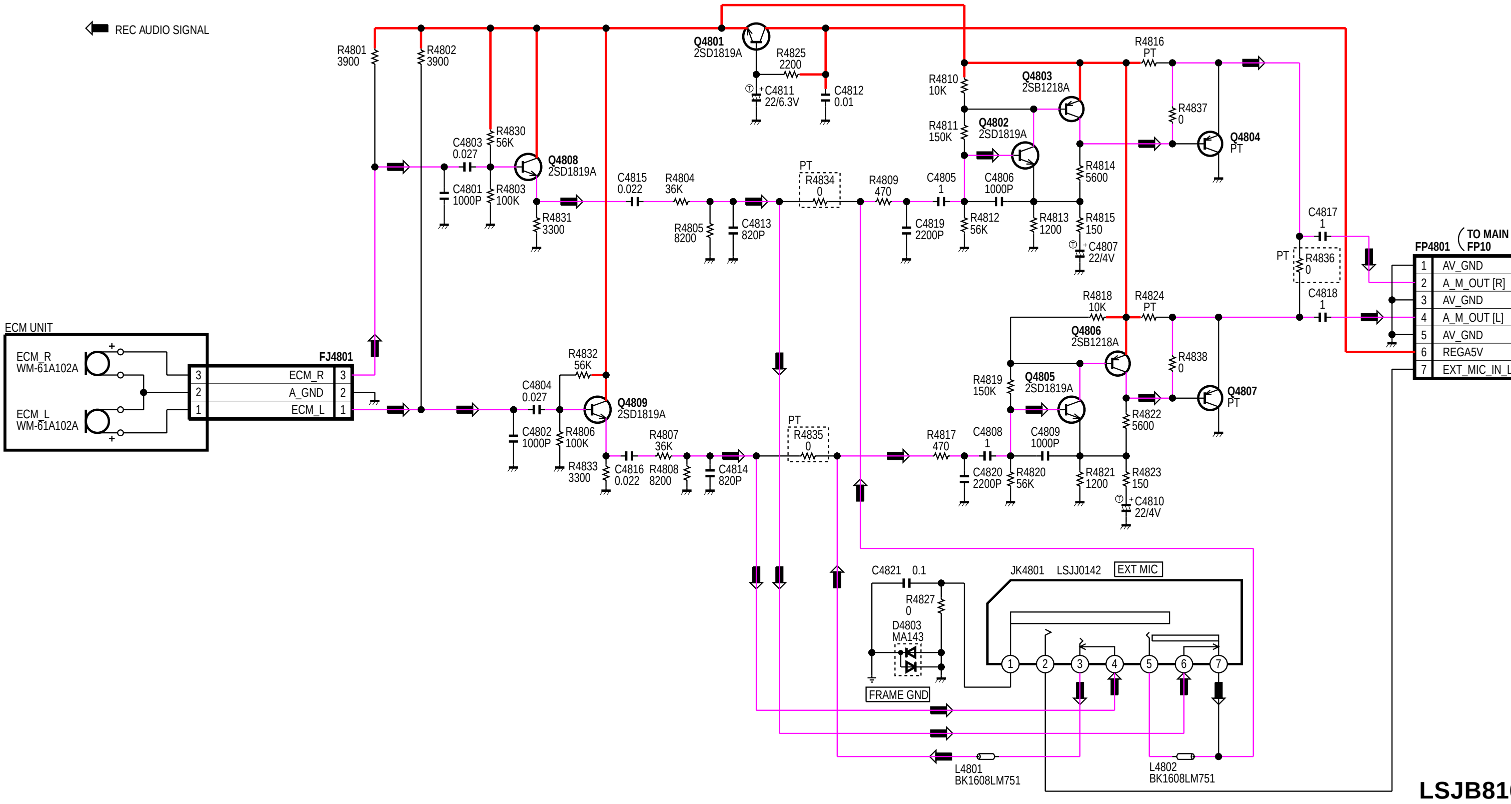
8.4. MICROPHONE/FRONT/EVF BACKLIGHT SCHEMATIC DIAGRAMS

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts
Do not use the part number on this diagram.

MICROPHONE SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
MICROPHONE C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

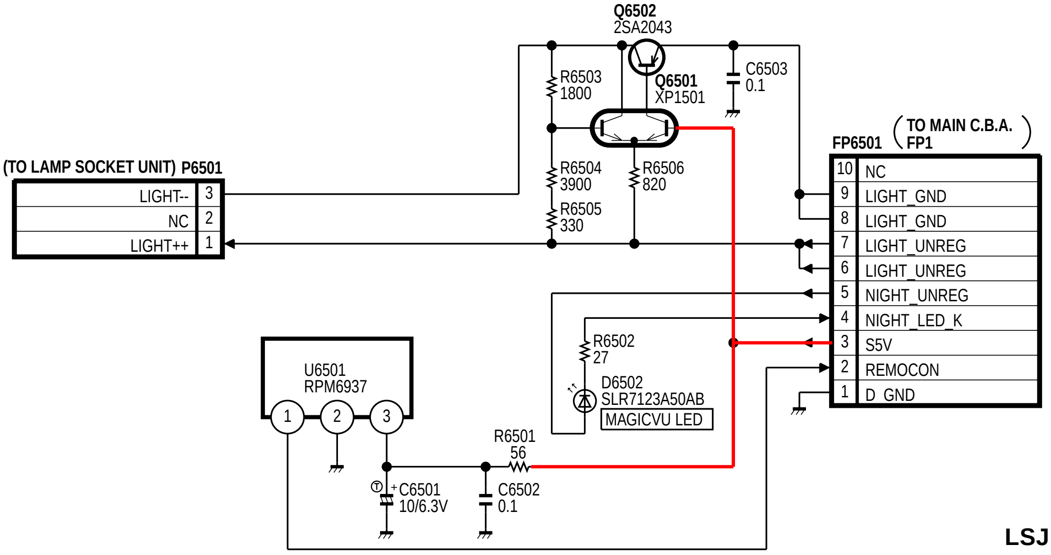

REC AUDIO SIGNAL
ECM UNIT
ECM_R WM-61A102A
ECM_L WM-61A102A
FJ4801
ECM_R 3
A_GND 2
ECM_L 1
R4801 3900
R4802 3900
R4830 56K
C4803 0.027
C4801 1000P
R4803 100K
Q4808 2SD1819A
R4831 3300
Q4801 2SD1819A
R4825 2200
C4811 22/6.3V
C4812 0.01
C4815 0.022
R4804 36K
R4805 8200
C4813 820P
PT R4834 0
R4809 470
C4819 2200P
C4805 1
R4810 10K
R4811 150K
R4812 56K
Q4803 2SB1218A
Q4802 2SD1819A
C4806 1000P
R4813 1200
R4814 5600
R4815 150
C4807 22/4V
R4816 PT
R4837 0
Q4804 PT
C4817 1
PT R4836 0
C4818 1
FP4801
TO MAIN FP10
1 AV_GND
2 A_M_OUT [R]
3 AV_GND
4 A_M_OUT [L]
5 AV_GND
6 REGA5V
7 EXT_MIC_IN_L
R4818 10K
R4824 PT
Q4806 2SB1218A
R4838 0
Q4807 PT
R4819 150K
Q4805 2SD1819A
R4822 5600
R4832 56K
C4804 0.027
Q4809 2SD1819A
C4802 1000P
R4806 100K
R4833 3300
C4816 0.022
R4807 36K
R4808 8200
C4814 820P
PT R4835 0
R4817 470
C4808 1
C4809 1000P
C4820 2200P
R4820 56K
R4821 1200
R4823 150
C4810 22/4V
C4821 0.1
R4827 0
D4803 MA143
FRAME GND
JK4801 LSJJ0142
EXT MIC
1 2 3 4 5 6 7
L4801 BK1608LM751
L4802 BK1608LM751

LSJB81

FRONT SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
FRONT C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


Q6502 2SA2043
R6503 1800
Q6501 XP1501
C6503 0.1
(TO LAMP SOCKET UNIT) P6501
LIGHT-- 3
NC 2
LIGHT++ 1
R6504 3900
R6506 820
R6505 330
FP6501
TO MAIN C.B.A. FP1
10 NC
9 LIGHT_GND
8 LIGHT_GND
7 LIGHT_UNREG
6 LIGHT_UNREG
5 NIGHT_UNREG
4 NIGHT_LED_K
3 S5V
2 REMOCON
1 D_GND
R6502 27
D6502 SLR7123A50AB
MAGICVU LED
U6501 RPM6937
1 2 3
R6501 56
C6501 10/6.3V
C6502 0.1

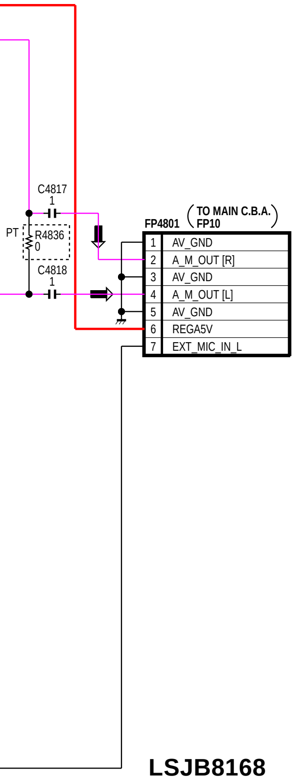
LSJB8193

S

chase order of the parts,
e part number listed in the parts list.
art number on this diagram.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



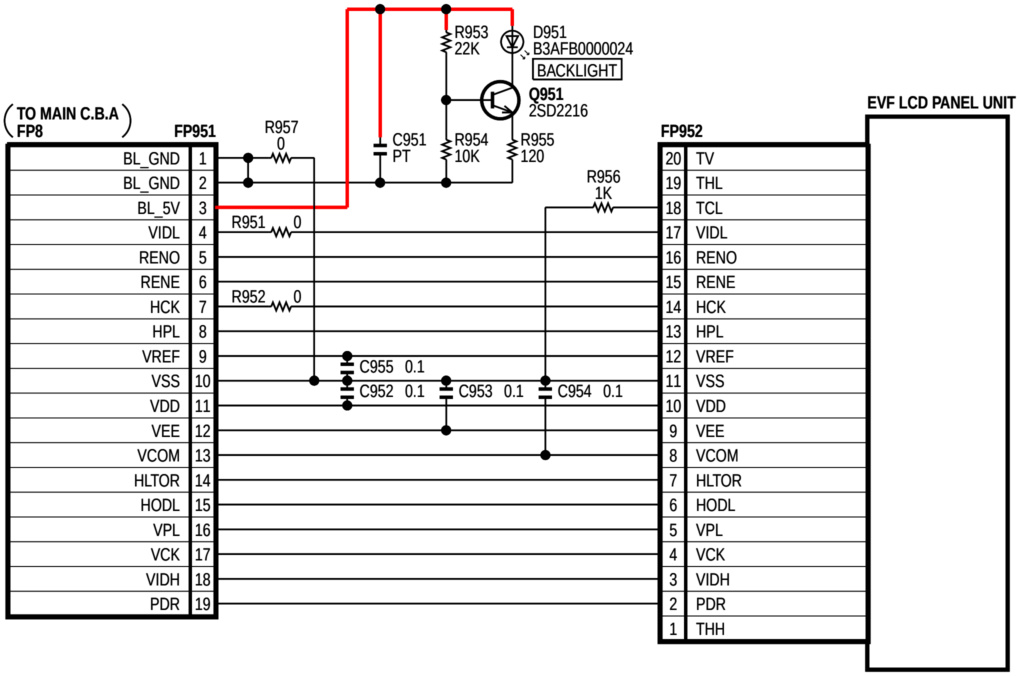
C4817
1
PT
R4836
0
C4818
1
FP4801
TO MAIN C.B.A.
FP10
1 AV_GND
2 A_M_OUT [R]
3 AV_GND
4 A_M_OUT [L]
5 AV_GND
6 REGA5V
7 EXT_MIC_IN_L

LSJB8168

EVF BACKLIGHT SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
EVF BACK LIGHT C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



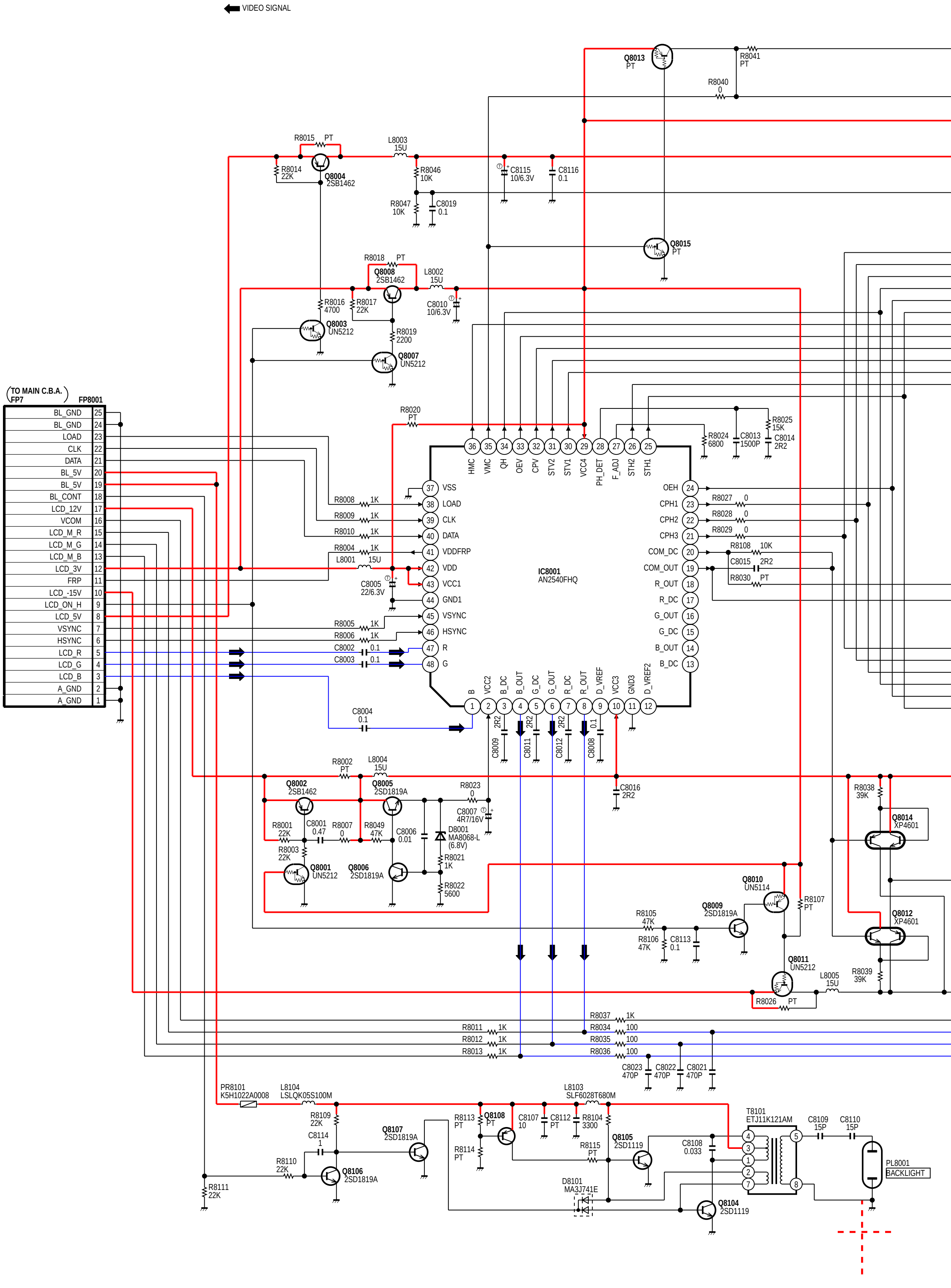
TO MAIN C.B.A
FP8
FP951
1 BL_GND
2 BL_GND
3 BL_5V
4 VIDL
5 RENO
6 RENE
7 HCK
8 HPL
9 VREF
10 VSS
11 VDD
12 VEE
13 VCOM
14 HLTOR
15 HODL
16 VPL
17 VCK
18 VIDH
19 PDR
R957
0
R951 0
R952 0
C951
PT
R953
22K
D951
B3AFB0000024
BACKLIGHT
Q951
2SD2216
R954
10K
R955
120
R956
1K
C955 0.1
C952 0.1
C953 0.1
C954 0.1
FP952
20 TV
19 THL
18 TCL
17 VIDL
16 RENO
15 RENE
14 HCK
13 HPL
12 VREF
11 VSS
10 VDD
9 VEE
8 VCOM
7 HLTOR
6 HODL
5 VPL
4 VCK
3 VIDH
2 PDR
1 THH
EVF LCD PANEL UNIT

LSJB8169

8.5. LCD SCHEMATIC DIAGRAM

LCD SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts
Do not use the part number on this diagram.

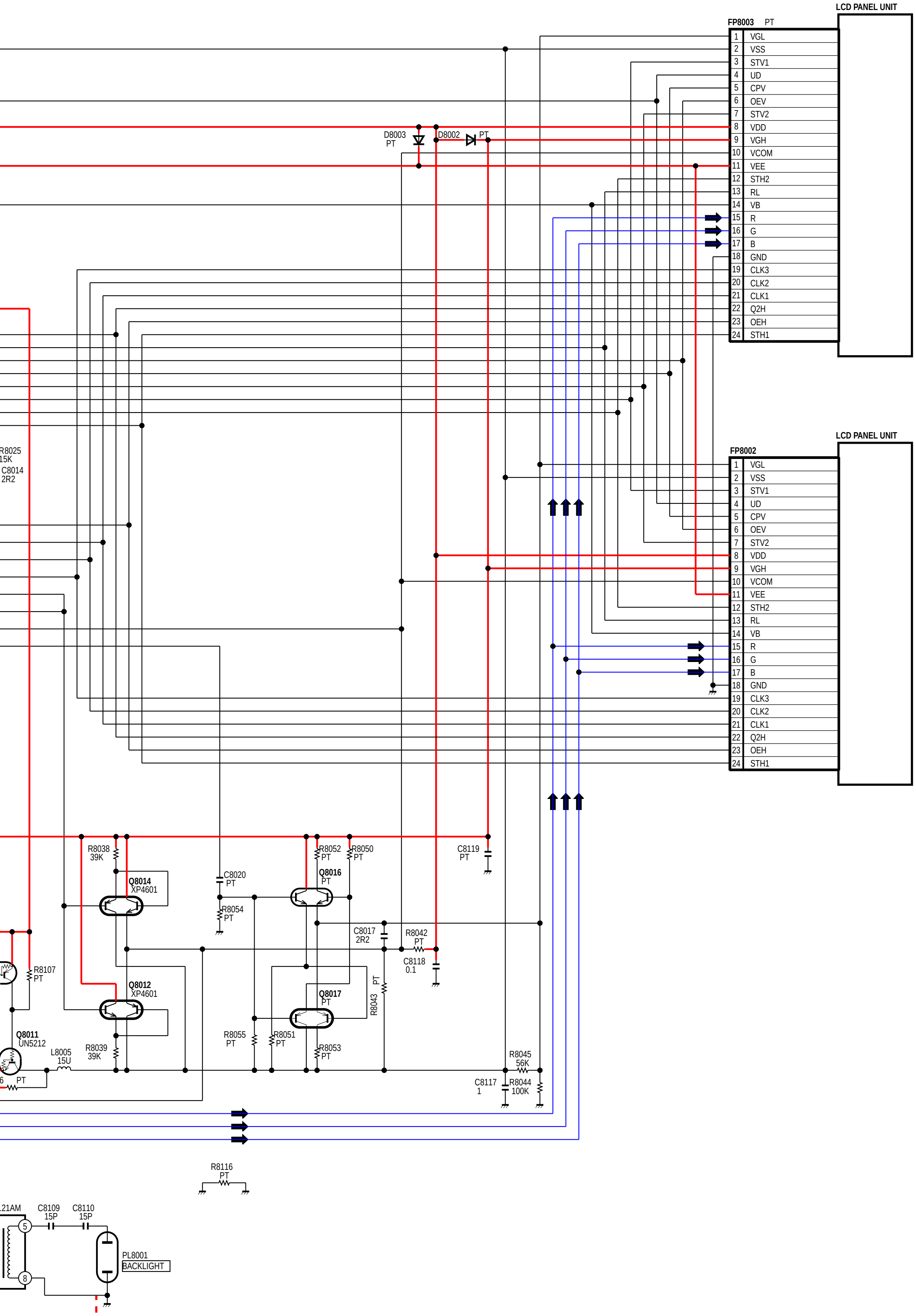


VIDEO SIGNAL
Q8013
PT
R8041
PT
R8040
0
R8015 PT
L8003
15U
R8014
22K
Q8004
2SB1462
R8046
10K
C8115
10/6.3V
C8116
0.1
R8047
10K
C8019
0.1
Q8015
PT
R8018 PT
Q8008
2SB1462
L8002
15U
R8016
4700
R8017
22K
C8010
10/6.3V
Q8003
UN5212
R8019
2200
Q8007
UN5212
TO MAIN C.B.A.
FP7
FP8001
BL_GND 25
BL_GND 24
LOAD 23
CLK 22
DATA 21
BL_5V 20
BL_5V 19
BL_CONT 18
LCD_12V 17
VCOM 16
LCD_M_R 15
LCD_M_G 14
LCD_M_B 13
LCD_3V 12
FRP 11
LCD_-15V 10
LCD_ON_H 9
LCD_5V 8
VSYNC 7
HSYNC 6
LCD_R 5
LCD_G 4
LCD_B 3
A_GND 2
A_GND 1
R8020
PT
R8024
6800
C8013
1500P
R8025
15K
C8014
2R2
36 HMC
35 VMC
34 QH
33 OEV
32 CPV
31 STV2
30 STV1
29 VCC4
28 PH_DET
27 F_ADJ
26 STH2
25 STH1
37 VSS
38 LOAD
39 CLK
40 DATA
41 VDDFRP
42 VDD
43 VCC1
44 GND1
45 VSYNC
46 HSYNC
47 R
48 G
R8008 1K
R8009 1K
R8010 1K
R8004 1K
L8001 15U
C8005
22/6.3V
R8005 1K
R8006 1K
C8002 0.1
C8003 0.1
IC8001
AN2540FHQ
OEH 24
CPH1 23
CPH2 22
CPH3 21
COM_DC 20
COM_OUT 19
R_OUT 18
R_DC 17
G_OUT 16
G_DC 15
B_OUT 14
B_DC 13
R8027 0
R8028 0
R8029 0
R8108 10K
C8015 2R2
R8030 PT
1 B
2 VCC2
3 B_DC
4 B_OUT
5 G_DC
6 G_OUT
7 R_DC
8 R_OUT
9 D_VREF
10 VCC3
11 GND3
12 D_VREF2
C8004
0.1
C8009 2R2
C8011 2R2
C8012 2R2
C8008 0.1
C8016
2R2
R8002
PT
L8004
15U
Q8002
2SB1462
Q8005
2SD1819A
R8023
0
C8007
4R7/16V
D8001
MA8068-L
(6.8V)
R8001
22K
C8001
0.47
R8007
0
R8049
47K
C8006
0.01
R8003
22K
R8021
1K
Q8001
UN5212
Q8006
2SD1819A
R8022
5600
R8038
39K
Q8014
XP4601
Q8010
UN5114
R8107
PT
Q8009
2SD1819A
R8105
47K
R8106
47K
C8113
0.1
Q8012
XP4601
Q8011
UN5212
L8005
15U
R8039
39K
R8026 PT
R8037 1K
R8011 1K
R8034 100
R8012 1K
R8035 100
R8013 1K
R8036 100
C8023
470P
C8022
470P
C8021
470P
PR8101
K5H1022A0008
L8104
LSLQK05S100M
L8103
SLF6028T680M
R8109
22K
C8114
1
Q8107
2SD1819A
R8110
22K
Q8106
2SD1819A
R8111
22K
R8113
PT
Q8108
PT
R8114
PT
C8107
10
C8112
PT
R8104
3300
R8115
PT
Q8105
2SD1119
C8108
0.033
D8101
MA3J741E
Q8104
2SD1119
T8101
ETJ11K121AM
C8109
15P
C8110
15P
PL8001
BACKLIGHT

chase order of the parts,
e part number listed in the parts list.
art number on this diagram.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.


LCD PANEL UNIT
FP8003 PT
1 VGL
2 VSS
3 STV1
4 UD
5 CPV
6 OEV
7 STV2
8 VDD
9 VGH
10 VCOM
11 VEE
12 STH2
13 RL
14 VB
15 R
16 G
17 B
18 GND
19 CLK3
20 CLK2
21 CLK1
22 Q2H
23 OEH
24 STH1
LCD PANEL UNIT
FP8002
1 VGL
2 VSS
3 STV1
4 UD
5 CPV
6 OEV
7 STV2
8 VDD
9 VGH
10 VCOM
11 VEE
12 STH2
13 RL
14 VB
15 R
16 G
17 B
18 GND
19 CLK3
20 CLK2
21 CLK1
22 Q2H
23 OEH
24 STH1
D8003 PT
D8002 PT
R8025 15K
C8014 2R2
R8038 39K
Q8014 XP4601
C8020 PT
R8054 PT
R8052 PT
R8050 PT
Q8016 PT
C8119 PT
C8017 2R2
R8042 PT
C8118 0.1
R8043 PT
Q8017 PT
R8107 PT
Q8012 XP4601
Q8011 UN5212
L8005 15U
R8039 39K
R8055 PT
R8051 PT
R8053 PT
R8045 56K
C8117 1
R8044 100K
6 PT
R8116 PT
21AM
C8109 15P
C8110 15P
5
8
PL8001 BACKLIGHT

LINK TO VOLTAGE CHART

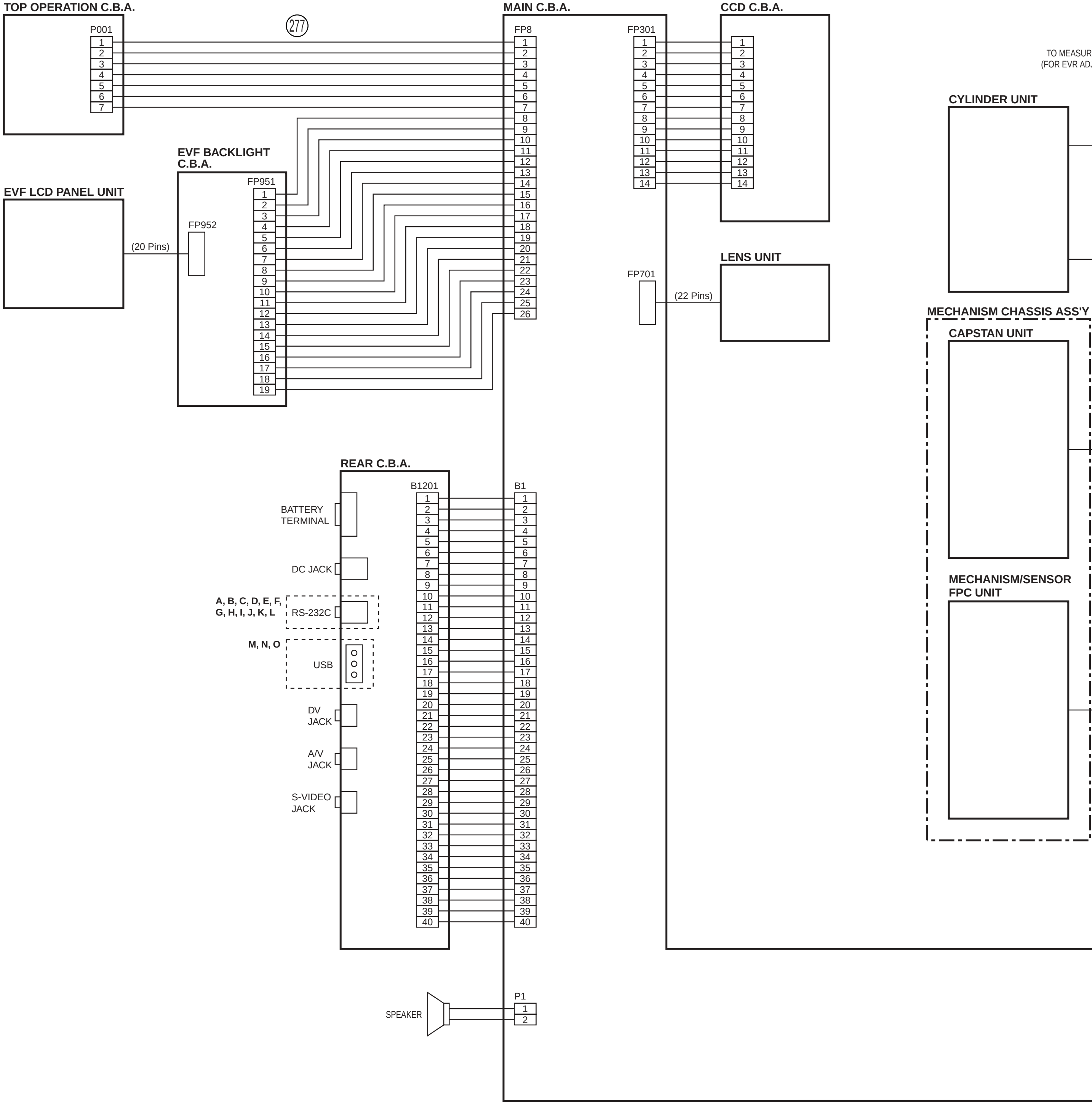
LSJB8188

LCD SCHEMATIC DIAGRAM

NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

8.6. INTERCONNECTION SCHEMATIC DIAGRAM

INTERCONNECTION SCHEMATIC DIAGRAM

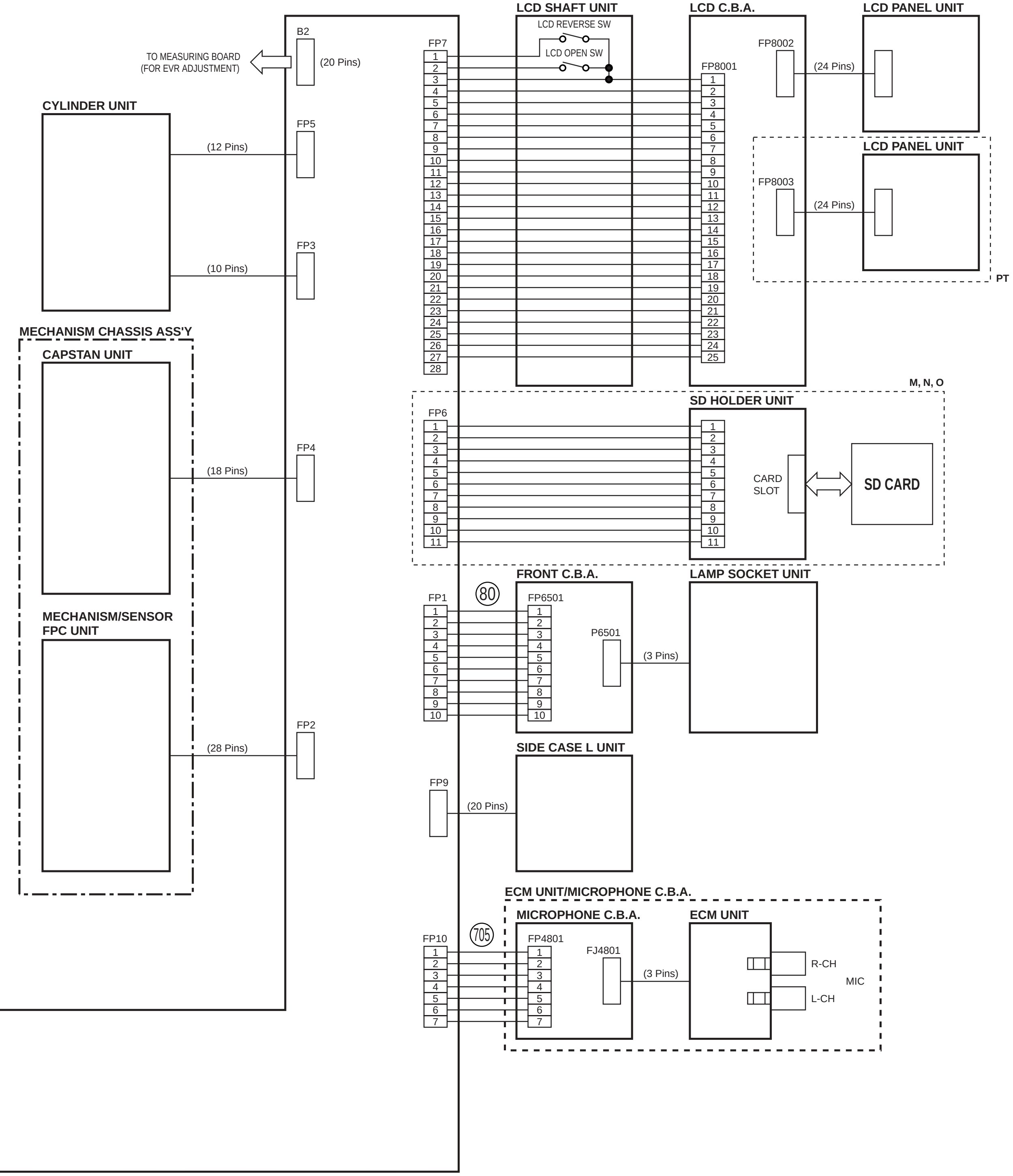

TOP OPERATION C.B.A.
P001
277
MAIN C.B.A.
FP8
FP301
CCD C.B.A.
TO MEASUR
(FOR EVR AD
CYLINDER UNIT
EVF BACKLIGHT C.B.A.
FP951
EVF LCD PANEL UNIT
FP952
(20 Pins)
LENS UNIT
FP701
(22 Pins)
MECHANISM CHASSIS ASS'Y
CAPSTAN UNIT
MECHANISM/SENSOR FPC UNIT
REAR C.B.A.
B1201
B1
BATTERY TERMINAL
DC JACK
A, B, C, D, E, F, G, H, I, J, K, L
RS-232C
M, N, O
USB
DV JACK
A/V JACK
S-VIDEO JACK
SPEAKER
P1

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O
Not Used	PT



TO MEASURING BOARD
(FOR EVR ADJUSTMENT)
B2
(20 Pins)
CYLINDER UNIT
(12 Pins)
FP5
(10 Pins)
FP3
FP7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
LCD SHAFT UNIT
LCD REVERSE SW
LCD OPEN SW
LCD C.B.A.
FP8001
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
FP8002
(24 Pins)
LCD PANEL UNIT
FP8003
(24 Pins)
LCD PANEL UNIT
PT
MECHANISM CHASSIS ASS'Y
CAPSTAN UNIT
(18 Pins)
FP4
MECHANISM/SENSOR
FPC UNIT
(28 Pins)
FP2
M, N, O
SD HOLDER UNIT
FP6
1 2 3 4 5 6 7 8 9 10 11
1 2 3 4 5 6 7 8 9 10 11
CARD
SLOT
SD CARD
FRONT C.B.A.
FP1
(80)
FP6501
1 2 3 4 5 6 7 8 9 10
1 2 3 4 5 6 7 8 9 10
P6501
(3 Pins)
LAMP SOCKET UNIT
SIDE CASE L UNIT
FP9
(20 Pins)
ECM UNIT/MICROPHONE C.B.A.
MICROPHONE C.B.A.
ECM UNIT
FP10
(705)
FP4801
1 2 3 4 5 6 7
1 2 3 4 5 6 7
FJ4801
(3 Pins)
R-CH
L-CH
MIC

INTERCONNECTION SCHEMATIC DIAGRAM
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/ NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

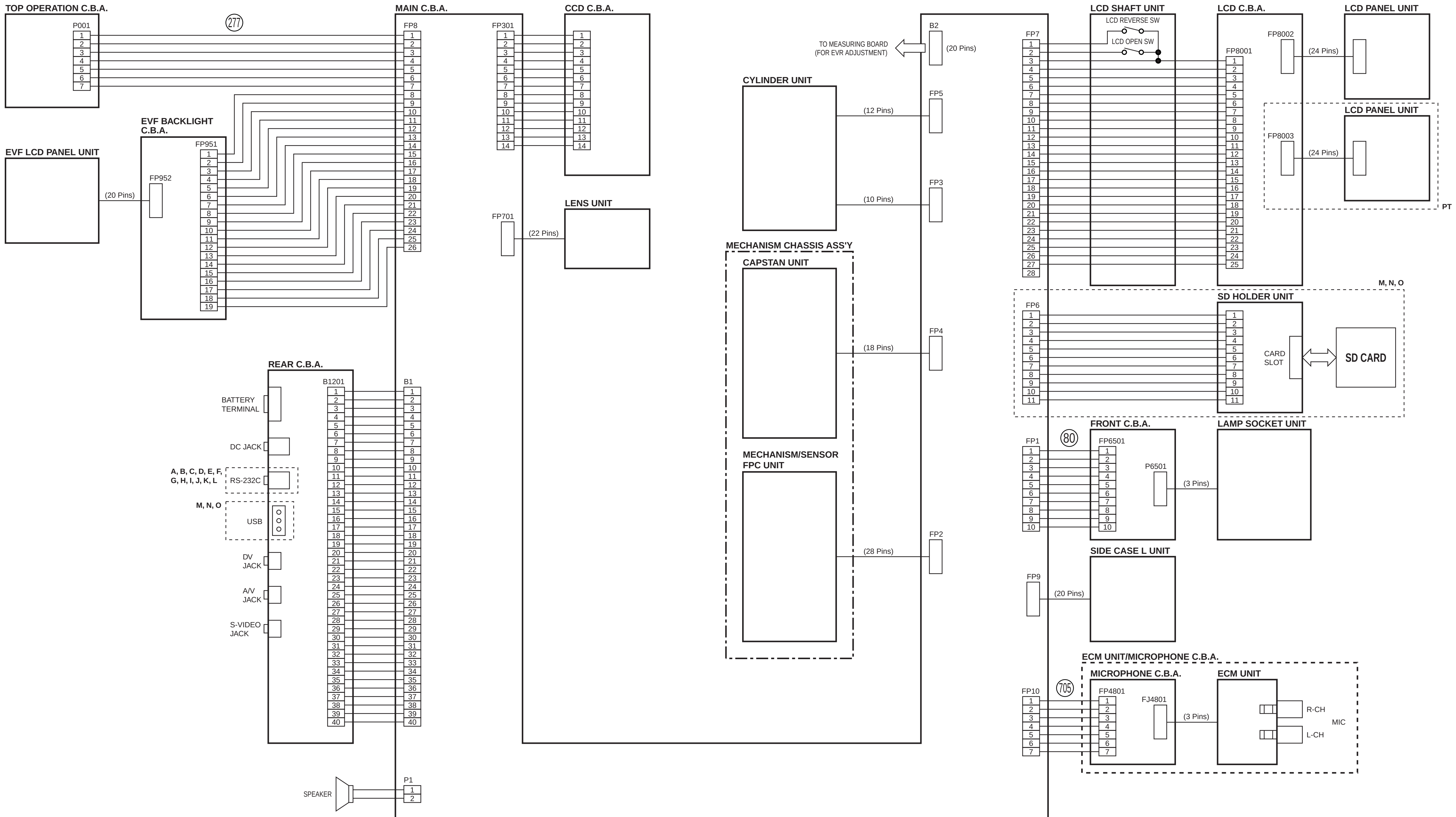
INTERCONNECTION SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O
Not Used	PT


TOP OPERATION C.B.A.
P001
277
MAIN C.B.A.
FP8
FP301
CCD C.B.A.
EVF BACKLIGHT C.B.A.
FP951
EVF LCD PANEL UNIT
FP952
(20 Pins)
FP701
(22 Pins)
LENS UNIT
REAR C.B.A.
B1201
B1
BATTERY TERMINAL
DC JACK
A, B, C, D, E, F, G, H, I, J, K, L
RS-232C
M, N, O
USB
DV JACK
A/V JACK
S-VIDEO JACK
SPEAKER
P1
TO MEASURING BOARD (FOR EVR ADJUSTMENT)
B2
(20 Pins)
CYLINDER UNIT
FP5
(12 Pins)
FP3
(10 Pins)
MECHANISM CHASSIS ASS'Y
CAPSTAN UNIT
FP4
(18 Pins)
MECHANISM/SENSOR FPC UNIT
FP2
(28 Pins)
FP7
LCD SHAFT UNIT
LCD REVERSE SW
LCD OPEN SW
LCD C.B.A.
FP8001
FP8002
(24 Pins)
LCD PANEL UNIT
FP8003
(24 Pins)
LCD PANEL UNIT
PT
M, N, O
FP6
SD HOLDER UNIT
CARD SLOT
SD CARD
FP1
80
FRONT C.B.A.
FP6501
P6501
(3 Pins)
LAMP SOCKET UNIT
SIDE CASE L UNIT
FP9
(20 Pins)
ECM UNIT/MICROPHONE C.B.A.
MICROPHONE C.B.A.
ECM UNIT
FP10
705
FP4801
FJ4801
(3 Pins)
R-CH
L-CH
MIC

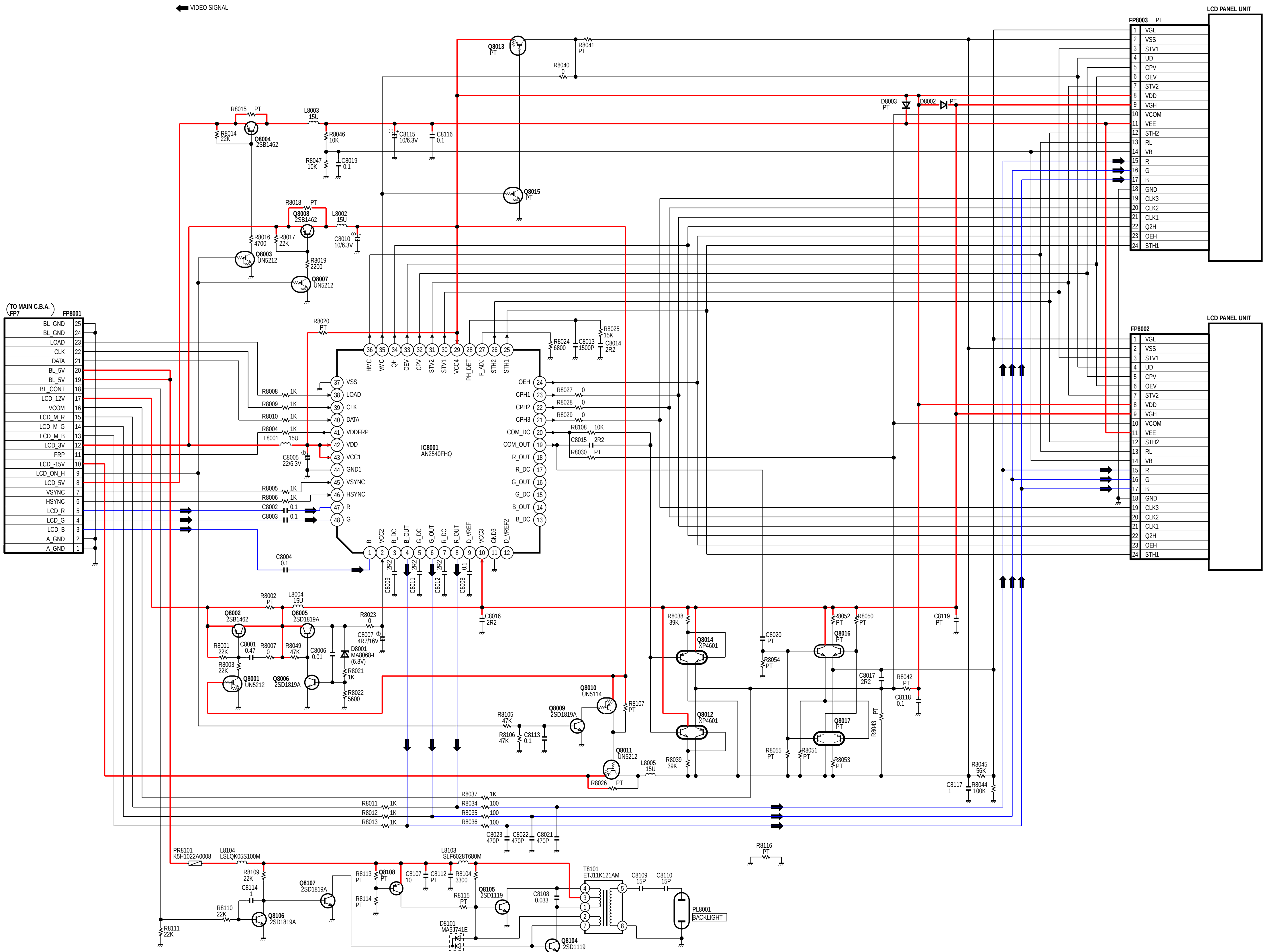
INTERCONNECTION SCHEMATIC DIAGRAM
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

LCD SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.


VIDEO SIGNAL
LCD PANEL UNIT
FP8003 PT
1 VGL
2 VSS
3 STV1
4 UD
5 CPV
6 OEV
7 STV2
8 VDD
9 VGH
10 VCOM
11 VEE
12 STH2
13 RL
14 VB
15 R
16 G
17 B
18 GND
19 CLK3
20 CLK2
21 CLK1
22 Q2H
23 OEH
24 STH1
LCD PANEL UNIT
FP8002
TO MAIN C.B.A.
FP7
FP8001
BL_GND 25
BL_GND 24
LOAD 23
CLK 22
DATA 21
BL_5V 20
BL_5V 19
BL_CONT 18
LCD_12V 17
VCOM 16
LCD_M_R 15
LCD_M_G 14
LCD_M_B 13
LCD_3V 12
FRP 11
LCD_-15V 10
LCD_ON_H 9
LCD_5V 8
VSYNC 7
HSYNC 6
LCD_R 5
LCD_G 4
LCD_B 3
A_GND 2
A_GND 1
IC8001
AN2540FHQ
36 HMC
35 VMC
34 QH
33 OEV
32 CPV
31 STV2
30 STV1
29 VCC4
28 PH_DET
27 F_ADJ
26 STH2
25 STH1
37 VSS
38 LOAD
39 CLK
40 DATA
41 VDDFRP
42 VDD
43 VCC1
44 GND1
45 VSYNC
46 HSYNC
47 R
48 G
24 OEH
23 CPH1
22 CPH2
21 CPH3
20 COM_DC
19 COM_OUT
18 R_OUT
17 R_DC
16 G_OUT
15 G_DC
14 B_OUT
13 B_DC
1 B
2 VCC2
3 B_DC
4 B_OUT
5 G_DC
6 G_OUT
7 R_DC
8 R_OUT
9 D_VREF
10 VCC3
11 GND3
12 D_VREF2
Q8013 PT
R8041 PT
R8040 0
R8015 PT
R8014 22K
Q8004 2SB1462
L8003 15U
R8046 10K
C8115 10/6.3V
C8116 0.1
R8047 10K
C8019 0.1
Q8015 PT
R8018 PT
Q8008 2SB1462
L8002 15U
C8010 10/6.3V
R8016 4700
R8017 22K
Q8003 UN5212
R8019 2200
Q8007 UN5212
R8020 PT
R8024 6800
C8013 1500P
R8025 15K
C8014 2R2
D8003 PT
D8002 PT
R8008 1K
R8009 1K
R8010 1K
R8004 1K
L8001 15U
C8005 22/6.3V
R8005 1K
R8006 1K
C8002 0.1
C8003 0.1
C8004 0.1
R8027 0
R8028 0
R8029 0
R8108 10K
C8015 2R2
R8030 PT
C8009 2R2
C8011 2R2
C8012 2R2
C8008 0.1
C8016 2R2
R8002 PT
L8004 15U
Q8002 2SB1462
Q8005 2SD1819A
R8023 0
C8007 4R7/16V
D8001 MA8068-L (6.8V)
R8001 22K
C8001 0.47
R8007 0
R8049 47K
C8006 0.01
R8003 22K
Q8001 UN5212
Q8006 2SD1819A
R8021 1K
R8022 5600
R8038 39K
Q8014 XP4601
C8020 PT
R8054 PT
R8052 PT
R8050 PT
Q8016 PT
C8119 PT
C8017 2R2
R8042 PT
C8118 0.1
Q8010 UN5114
R8107 PT
Q8009 2SD1819A
R8105 47K
R8106 47K
C8113 0.1
Q8012 XP4601
Q8017 PT
R8043 PT
Q8011 UN5212
L8005 15U
R8039 39K
R8055 PT
R8051 PT
R8053 PT
R8045 56K
C8117 1
R8044 100K
R8026 PT
R8037 1K
R8011 1K
R8034 100
R8012 1K
R8035 100
R8013 1K
R8036 100
C8023 470P
C8022 470P
C8021 470P
R8116 PT
PR8101 K5H1022A0008
L8104 LSLQK05S100M
R8109 22K
C8114 1
Q8107 2SD1819A
R8110 22K
Q8106 2SD1819A
R8111 22K
R8113 PT
Q8108 PT
R8114 PT
C8107 10
C8112 PT
L8103 SLF6028T680M
R8104 3300
R8115 PT
Q8105 2SD1119
D8101 MA3J741E
C8108 0.033
Q8104 2SD1119
T8101 ETJ11K121AM
C8109 15P
C8110 15P
PL8001 BACKLIGHT

LINK TO VOLTAGE CHART

LSJB8188
LCD SCHEMATIC DIAGRAM
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

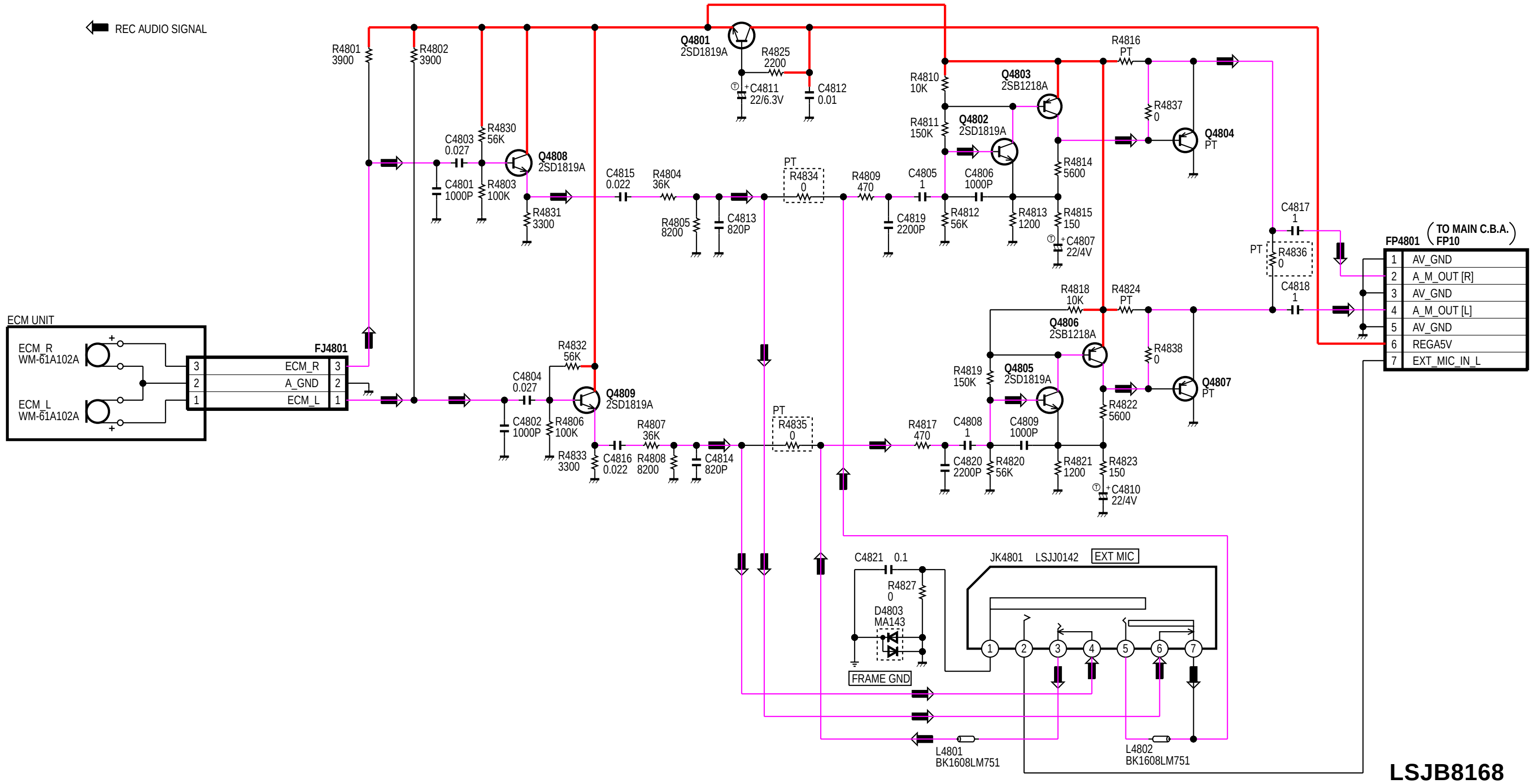
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MICROPHONE SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
MICROPHONE C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

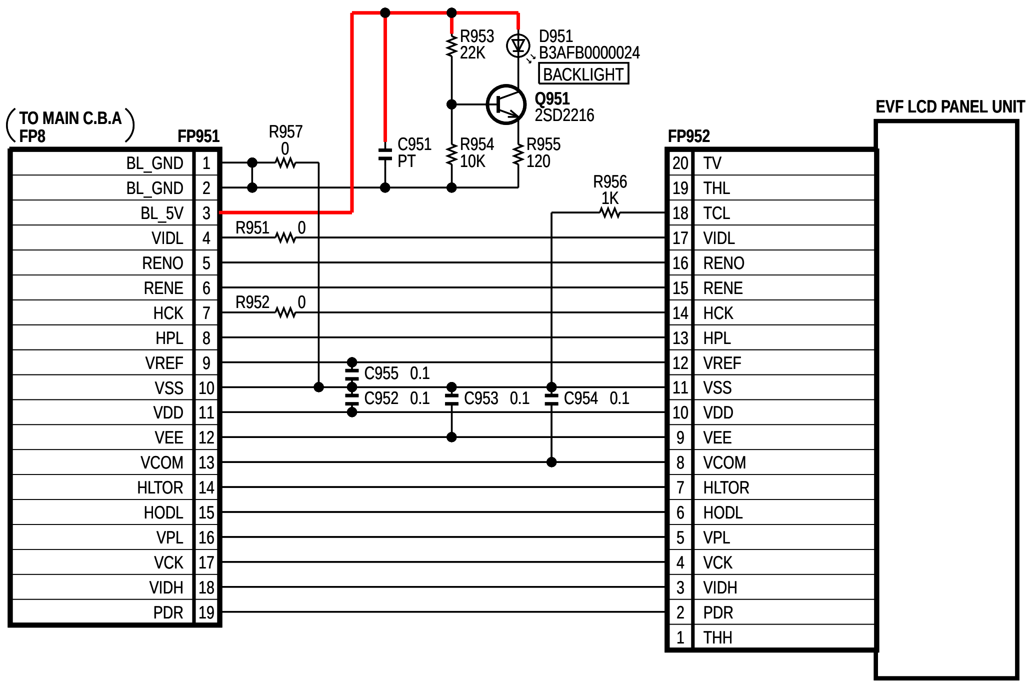

REC AUDIO SIGNAL
R4801 3900
R4802 3900
R4830 56K
C4803 0.027
Q4808 2SD1819A
C4801 1000P
R4803 100K
R4831 3300
Q4801 2SD1819A
R4825 2200
C4811 22/6.3V
C4812 0.01
C4815 0.022
R4804 36K
R4805 8200
C4813 820P
PT R4834 0
R4809 470
C4805 1
C4819 2200P
R4810 10K
R4811 150K
Q4802 2SD1819A
Q4803 2SB1218A
C4806 1000P
R4812 56K
R4813 1200
R4814 5600
R4815 150
C4807 22/4V
R4816 PT
R4837 0
Q4804 PT
C4817 1
PT R4836 0
C4818 1
ECM UNIT
ECM_R WM-61A102A
ECM_L WM-61A102A
FJ4801
3 ECM_R 3
2 A_GND 2
1 ECM_L 1
R4832 56K
C4804 0.027
Q4809 2SD1819A
C4802 1000P
R4806 100K
R4833 3300
C4816 0.022
R4807 36K
R4808 8200
C4814 820P
PT R4835 0
R4817 470
C4808 1
C4820 2200P
R4819 150K
Q4805 2SD1819A
Q4806 2SB1218A
C4809 1000P
R4820 56K
R4821 1200
R4818 10K
R4824 PT
R4822 5600
R4823 150
C4810 22/4V
R4838 0
Q4807 PT
FP4801 (TO MAIN C.B.A. FP10)
1 AV_GND
2 A_M_OUT [R]
3 AV_GND
4 A_M_OUT [L]
5 AV_GND
6 REGA5V
7 EXT_MIC_IN_L
C4821 0.1
R4827 0
D4803 MA143
FRAME GND
JK4801 LSJJ0142 EXT MIC
1 2 3 4 5 6 7
L4801 BK1608LM751
L4802 BK1608LM751

LSJB8168

EVF BACKLIGHT SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
EVF BACK LIGHT C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

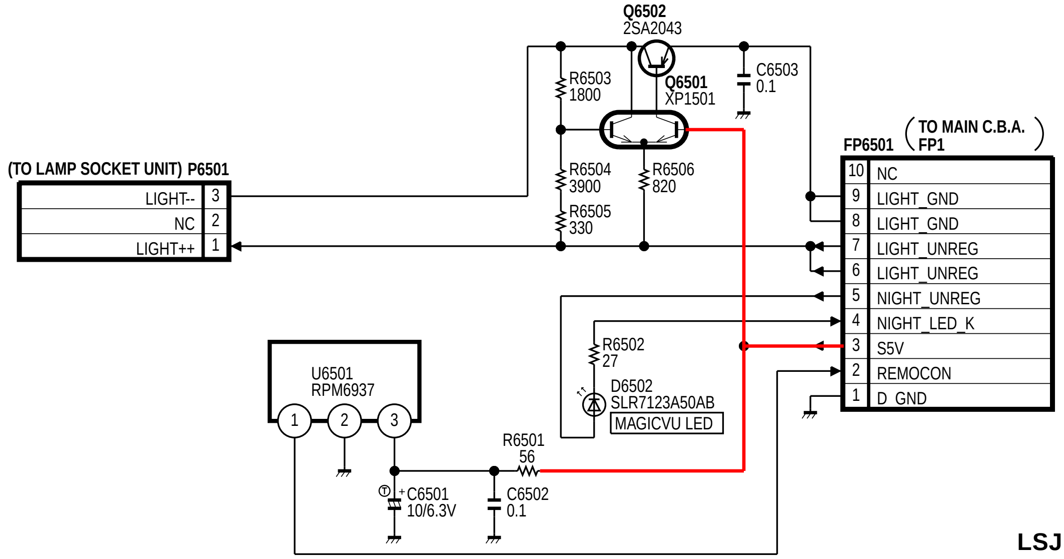

TO MAIN C.B.A FP8
FP951
BL_GND 1
BL_GND 2
BL_5V 3
VIDL 4
RENO 5
RENE 6
HCK 7
HPL 8
VREF 9
VSS 10
VDD 11
VEE 12
VCOM 13
HLTOR 14
HODL 15
VPL 16
VCK 17
VIDH 18
PDR 19
R957 0
R951 0
R952 0
R953 22K
D951 B3AFB0000024
BACKLIGHT
Q951 2SD2216
C951 PT
R954 10K
R955 120
R956 1K
C955 0.1
C952 0.1
C953 0.1
C954 0.1
EVF LCD PANEL UNIT
FP952
20 TV
19 THL
18 TCL
17 VIDL
16 RENO
15 RENE
14 HCK
13 HPL
12 VREF
11 VSS
10 VDD
9 VEE
8 VCOM
7 HLTOR
6 HODL
5 VPL
4 VCK
3 VIDH
2 PDR
1 THH

LSJB8169

FRONT SCHEMATIC DIAGRAM

“FOR REFERENCE ONLY”

NOTE:
FRONT C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.


Q6502 2SA2043
R6503 1800
Q6501 XP1501
C6503 0.1
(TO LAMP SOCKET UNIT) P6501
LIGHT-- 3
NC 2
LIGHT++ 1
R6504 3900
R6506 820
R6505 330
FP6501 (TO MAIN C.B.A. FP1)
10 NC
9 LIGHT_GND
8 LIGHT_GND
7 LIGHT_UNREG
6 LIGHT_UNREG
5 NIGHT_UNREG
4 NIGHT_LED_K
3 S5V
2 REMOCON
1 D_GND
R6502 27
D6502 SLR7123A50AB
MAGICVU LED
U6501 RPM6937
1 2 3
R6501 56
C6501 10/6.3V
C6502 0.1

LSJB8193

MICROPHONE/FRONT/EVF BACKLIGHT SCHEMATIC DIAGRAMS
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

REAR SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

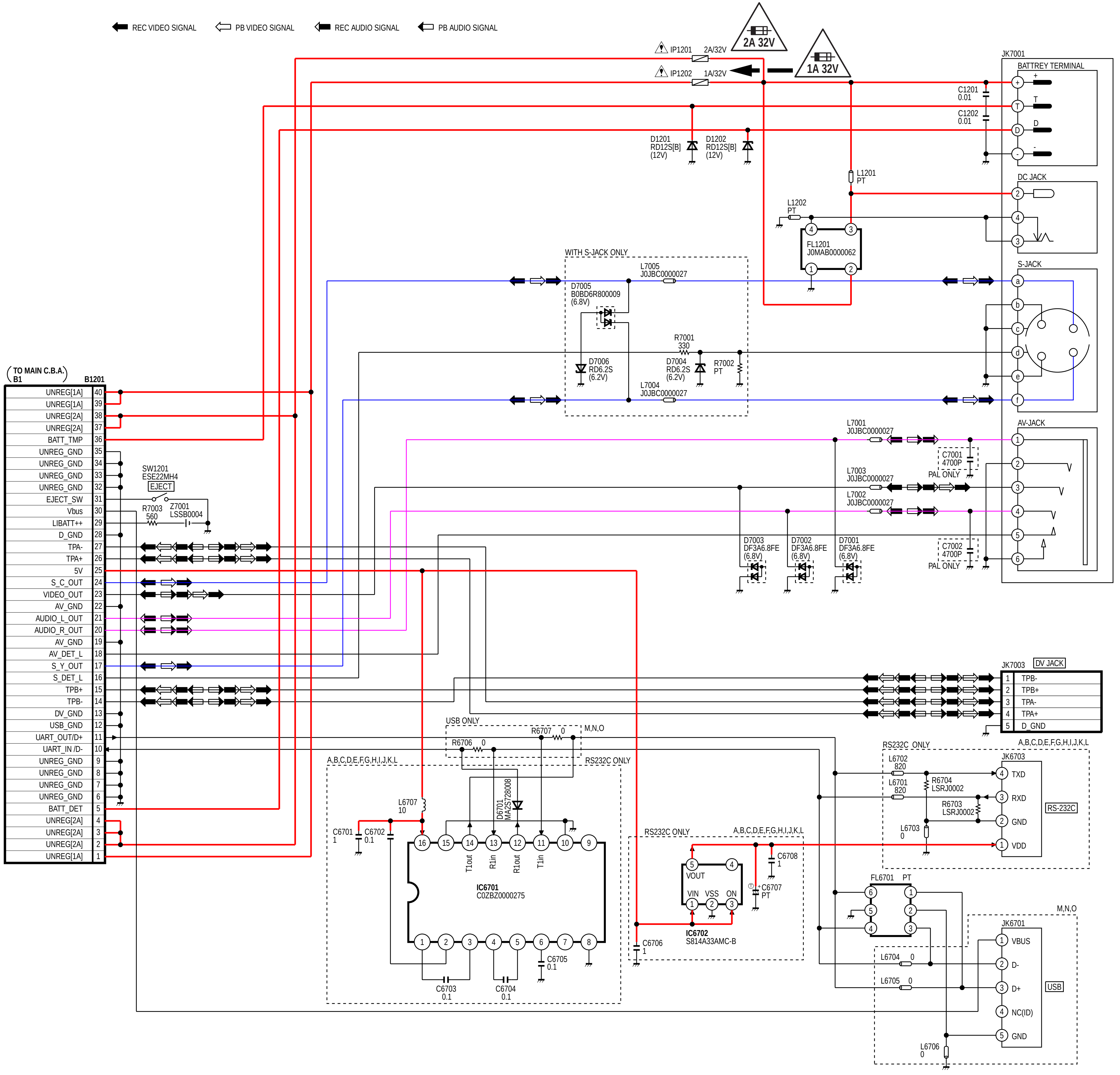
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O
Not Used	PT

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.



REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL
2A 32V
1A 32V
IP1201 2A/32V
IP1202 1A/32V
JK7001
BATTREY TERMINAL
C1201 0.01
C1202 0.01
D1201 RD12S[B] (12V)
D1202 RD12S[B] (12V)
L1201 PT
L1202 PT
FL1201 J0MAB0000062
DC JACK
S-JACK
AV-JACK
WITH S-JACK ONLY
L7005 J0JBC0000027
D7005 B0BD6R800009 (6.8V)
R7001 330
D7006 RD6.2S (6.2V)
D7004 RD6.2S (6.2V)
R7002 PT
L7004 J0JBC0000027
L7001 J0JBC0000027
C7001 4700P
PAL ONLY
L7003 J0JBC0000027
L7002 J0JBC0000027
D7003 DF3A6.8FE (6.8V)
D7002 DF3A6.8FE (6.8V)
D7001 DF3A6.8FE (6.8V)
C7002 4700P
PAL ONLY
TO MAIN C.B.A.
B1
B1201
UNREG[1A] 40
UNREG[1A] 39
UNREG[2A] 38
UNREG[2A] 37
BATT_TMP 36
UNREG_GND 35
UNREG_GND 34
UNREG_GND 33
UNREG_GND 32
EJECT_SW 31
Vbus 30
LIBATT++ 29
D_GND 28
TPA- 27
TPA+ 26
5V 25
S_C_OUT 24
VIDEO_OUT 23
AV_GND 22
AUDIO_L_OUT 21
AUDIO_R_OUT 20
AV_GND 19
AV_DET_L 18
S_Y_OUT 17
S_DET_L 16
TPB+ 15
TPB- 14
DV_GND 13
USB_GND 12
UART_OUT/D+ 11
UART_IN /D- 10
UNREG_GND 9
UNREG_GND 8
UNREG_GND 7
UNREG_GND 6
BATT_DET 5
UNREG[2A] 4
UNREG[2A] 3
UNREG[2A] 2
UNREG[1A] 1
SW1201 ESE22MH4
EJECT
R7003 560
Z7001 LSSB0004
JK7003 DV JACK
TPB-
TPB+
TPA-
TPA+
D_GND
USB ONLY
R6707 0
M,N,O
R6706 0
A,B,C,D,E,F,G,H,I,J,K,L
RS232C ONLY
L6707 10
C6701 1
C6702 0.1
D6701 MA2S728008
T1out
R1in
R1out
T1in
IC6701 C0ZBZ0000275
C6705 0.1
C6703 0.1
C6704 0.1
RS232C ONLY
A,B,C,D,E,F,G,H,I,J,K,L
C6708 1
VOUT
VIN VSS ON
C6707 PT
IC6702 S814A33AMC-B
C6706 1
RS232C ONLY
A,B,C,D,E,F,G,H,I,J,K,L
L6702 820
L6701 820
R6704 LSRJ0002
R6703 LSRJ0002
L6703 0
JK6703
TXD
RXD
GND
VDD
RS-232C
FL6701 PT
M,N,O
JK6701
VBUS
D-
D+
NC(ID)
GND
USB
L6704 0
L6705 0
L6706 0

LSJB8183
REAR SCHEMATIC DIAGRAM
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/
NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/
NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information
   ⚲ : Test point with no test pin.

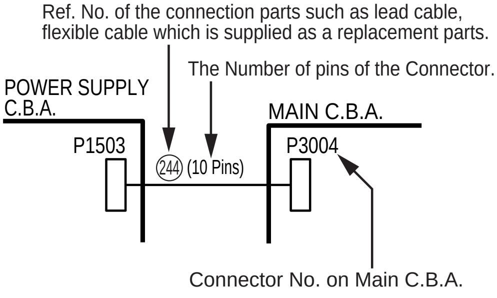
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V)......Zener Voltage

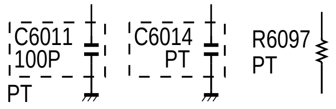
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to,
   in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.


Ref. No. of the connection parts such as lead cable, flexible cable which is supplied as a replacement parts.
The Number of pins of the Connector.
POWER SUPPLY C.B.A.
MAIN C.B.A.
P1503
(244)
(10 Pins)
P3004
Connector No. on Main C.B.A.

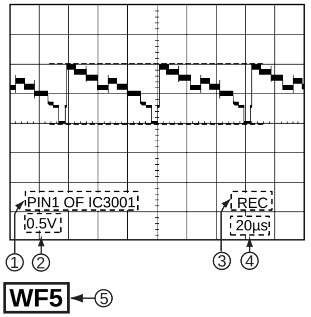
3. Parts marked "PT" are not used in any models included in this service model.

   Example:


C6011
100P
PT
C6014
PT
R6097
PT

Signal Waveform Note

How to read Signal Waveform


PIN1 OF IC3001
0.5V
REC
20µs
①
②
③
④
WF5
⑤

① Connecting Point
② Volts/Div
③ Operation Mode of VCR
④ Time/Div
⑤ Waveform Point on Schematic

Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layout includes components which are not used.

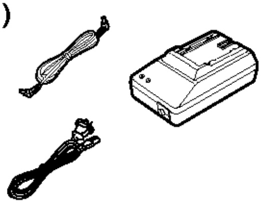
Model No. Identification Mark

COMPARISON CHART OF MODELS & MARKS

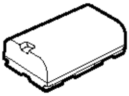
MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS20EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H	Not Used	PT

Note : Refer to item 3 of Schematic Diagram Notes for mark "PT".

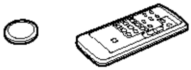
1)



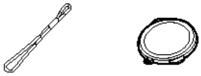
2)



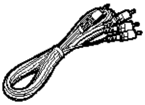
3)



4)



5)



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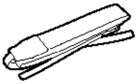
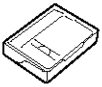
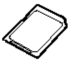


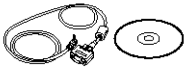
7)



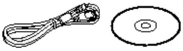
8)
NV-DS50



9)
NV-DS30



10)
NV-DS50



Standard Accessories

Illustrated on the left are accessories supplied with the Movie Camera.

1) **AC Adaptor, DC Input Lead and AC Mains Lead (→ 10)**
2) **Battery Pack (→ 10)**
3) **Remote Controller and Button-Type Battery (→ 8, 9)**
4) **Lens Cap (→ 11)**
5) **AV Cable (→ 35, 36)**
6) **Shoulder Strap (→ 12)**
7) **Digital Video Head Cleaner (→ 52)**
8) **SD Memory Card (NV-DS50 only) (→ 38)**
9) **Personal Computer Connection Kit (NV-DS30 only) (→ 37)**
10) **USB Connection Kit (NV-DS50 only) (→ 43)**

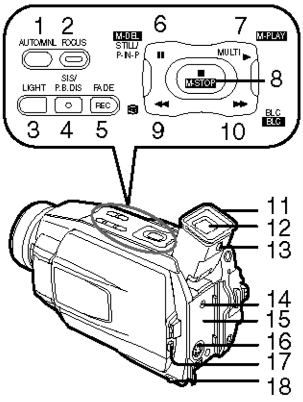
Optional Accessories

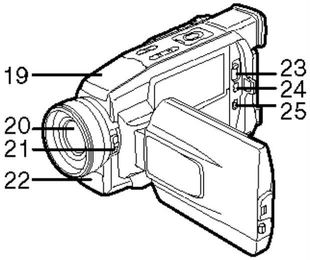
1) AC Adaptor (VW-AD9A)
2) Battery Pack (Lithium/CGR-D08S/CGR-D120/800mAh)
3) Battery Pack (Lithium/CGP-D14S/CGP-D210/1400mAh)
4) Battery Pack (Lithium/CGR-D16S/CGR-D220/1600mAh)
5) Battery Pack (Lithium/CGP-D28S/CGP-D320/2800mAh)
6) Battery Pack (Lithium/CGR-D53S/CGR-D815/5300mAh)
7) Battery Pack (Lithium/CGA-D54S/5400mAh)
8) Car Battery Charger (VW-KBD2E)
9) Filter Kit (VW-LF43WE)
10) Wide Conversion Lens (VW-LW4307ME)
11) Tele Conversion Lens (VW-LT4314ME)
12) Stereo Microphone (VW-VMS2E)
13) Shoe Adaptor (VW-SK11E)
14) Tripod (VZ-CT55E)
15) Personal Computer Connection Kit (VW-DTA10A/VW-DTA9E) **(NV-DS30 only)**
16) DV Editing Software with DV Interface Board (VW-DTM21E)
17) DV Editing Software with DV Interface Card (VW-DTM22E)
18) DV Editing Software (VW-DTM20E)
19) DV Cable (VW-CD1E)

The following is for the NV-DS50 model only.

20) MultiMediaCard (VW-MMC8E/VW-MMC16E)
21) SD Memory Card (RP-SD008/RP-SD016/RP-SD032/RP-SD064)
22) PC Card Adaptor for SD Memory Card (BN-SDABPE)
23) USB Reader Writer for SD Memory Card (BN-SDCAPE)

- Some optional accessories may not be available in some countries.





Controls and Components

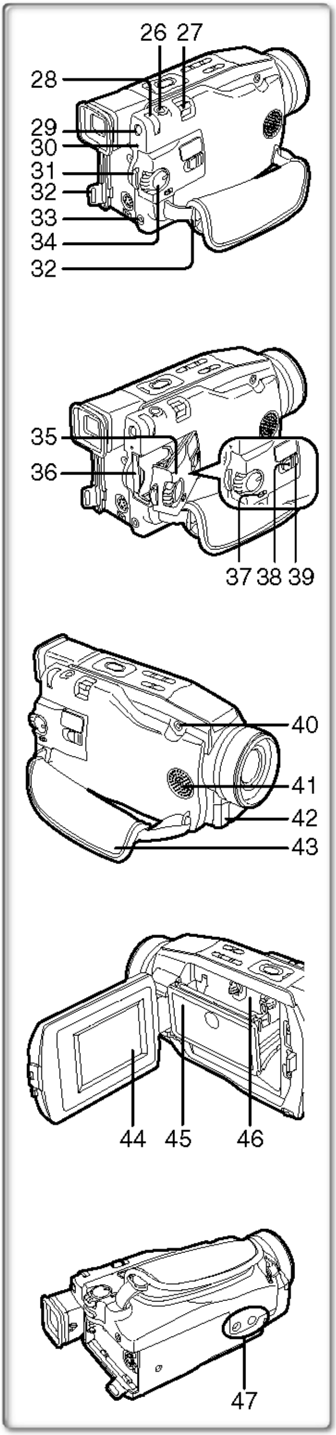
1) **Mode Selector Button [AUTO/MNL] (→ 18, 25, 26, 27)**
2) **Focus Button [FOCUS] (→ 27)**
3) **Video Light Button [LIGHT] (→ 19)**
4) **Super Image Stabilizer Button [SIS] (→ 22)**
   Playback Digital Image Stabilizer Button [P.B.DIS] (→ 30)
5) **Fade Button [FADE] (→ 22)**
   Recording Button [REC] (→ 36, 37)
6) **Still Button [STILL] (→ 20, 29)**
   Picture in Picture Button [P-IN-P] (→ 29)
   Pause Button [❚❚] (→ 32)
   Memory Card Data Delete Button [M-DEL] (NV-DS50 only) (→ 42)
7) **Play Button [▶] (→ 30)**
   Playback Multi Button [MULTI] (→ 30)
   Memory Card Play Button [M-PLAY] (NV-DS50 only) (→ 40)
8) **Stop Button [■] (→ 30)**
   Memory Card Stop Button [M-STOP] (NV-DS50 only) (→ 40)
9) **Recording Check Button [⟲] (→ 18)**
   Rewind/Review Button [◀◀] (→ 30, 31)
10) **Backlight Button [BLC] (→ 23, 39)**
    Fast Forward/Cue Button [▶▶] (→ 31)
11) **Eyecup**
12) **Viewfinder (→ 13, 53)**

……

- **Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the Viewfinder screen. However, this is not a malfunction and does not affect the recorded picture.**

……

13) **Eyepiece Corrector Knob (→ 13)**
14) **DC Input Socket [DC IN] (→ 10)**
15) **Battery Holder**
16) **S-Video Input/Output Socket [S-VIDEO] (→ 35, 36)**
17) **LCD Monitor Open Button [PUSH OPEN] (→ 13)**
18) **Battery Release Lever [BATT RELEASE] (→ 10)**
19) **Microphone (built-in, stereo) (→ 21)**
20) **Lens**
21) **0-Lux Recording Switch [0 LUX ON/OFF] (→ 23)**
22) **Built-in Video Light (→ 19)**
23) **Cassette Eject Lever [TAPE EJECT] (→ 12)**
24) **DV Terminal (→ 37)**
    - Connect this to the digital video equipment.
25) **Digital Still Picture Terminal [TO PC] (NV-DS30 only) (→ 37)**
    USB Socket [TO PC] (NV-DS50 only) (→ 43)



26) Photoshot Button [PHOTOSHOT] (→ 20, 39)

27) Zoom Lever [W/T] (→ 21)
Volume Lever [VOLUME] (→ 30)

28) Multi-Function Dial [PUSH] (→ 14, 25, 26, 27)

29) Menu Button [MENU] (→ 14)

30) Power Lamp [POWER] (→ 18, 30, 39)

31) Recording Start/Stop Button (→ 18)

32) Shoulder Strap Holders (→ 12)

33) Audio-Video Input/Output Socket [A/V IN/OUT] (→ 35, 36)
Headphone Socket [PHONES] (→ 48)

- Connecting an AV Cable to this socket activates the Movie Camera's built-in speaker, but connecting a headphone, etc. deactivates it.

34) Off/On Mode Selector Switch [VCR/OFF/CAMERA/M-CARD] ([M-CARD] NV-DS50 only) (→ 12, 18, 30, 39, 50)

35) Card Slot Cover (NV-DS50 only) (→ 38)

36) Card Slot (NV-DS50 only) (→ 38)

37) Card Lock Switch [LOCK] (NV-DS50 only) (→ 39, 40)

- When you want to record in Camera Mode, setting to lock prevents the [VCR/OFF/CAMERA/M-CARD] Switch to be set to [M-CARD] by accident.

38) Card Access Lamp [ACCESS] (NV-DS50 only) (→ 38)

39) Card Slot Cover Open Lever [OPEN] (NV-DS50 only) (→ 38)

40) Microphone Socket [EXT MIC]

- Connect with an external microphone or audio equipment. (When this socket is in use, the built-in microphone does not operate.)

41) Speaker (→ 30)

42) Remote Control Sensor (→ 9)
Built-in Infra-red Beam Emitters (→ 23)

43) Grip Belt (→ 11)

44) LCD Monitor (→ 13, 53)

……

- **Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the LCD Monitor screen. However, this is not a malfunction and does not affect the recorded picture.**

……

45) Cassette Compartment Cover (→ 12)

46) Cassette Holder (→ 12)

47) Tripod Receptacle

- Used for mounting the Movie Camera on an optional tripod.

MAIN PARTS PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	-	Cassette Cover Ass'y	❶	6(L-1)	1
2	⑪	Side Case L Unit	❶	6(404)-1, (L-2), P1, FP6, FP9	2,3
3	-	Front Case Ass'y	❶	2(404)-3, FP1	-
4	(E10)	Main C.B.A.	❶	(510)-4, 3(L-3), B1, FP2, FP3, FP4, FP5, FP7, FP8, FP10, FP301, FP701	4
5	(E20)	Rear C.B.A.	❶	2(404)-5, (510)-5	5
6	-	Lens Ass'y	❶	-----	6
7	-	Top Case & EVF Ass'y	❶	2(404)-6	7
8	①	Mechanism Chassis Ass'y	❶	(404)-7, 3(L-4)	8
9	-	Side Case R Ass'y	❶	-----	-

↑ A ↑ B ↑ C ↑ D ↑ E ↑ F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

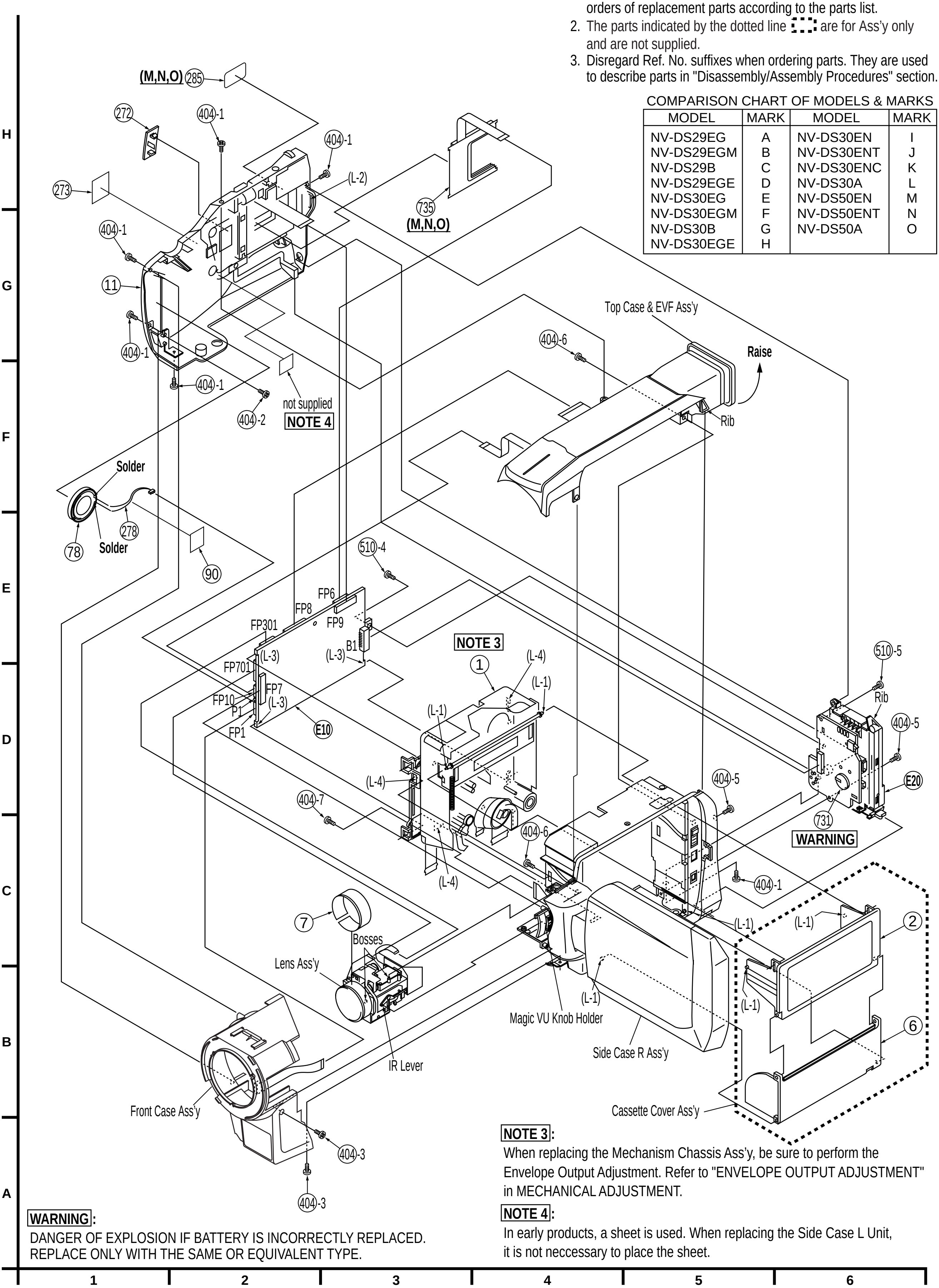
❶ MAIN PARTS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝⁝⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		


H
G
F
E
D
C
B
A
1
2
3
4
5
6
(M,N,O) 285
272
404-1
404-1
273
(L-2)
735
(M,N,O)
404-1
11
404-1
404-1
404-2
not supplied
NOTE 4
Top Case & EVF Ass'y
404-6
Raise
Rib
Solder
278
78
Solder
90
510-4
FP6
FP8
FP9
FP301
B1
(L-3)
(L-3)
FP701
FP7
(L-3)
FP10
P1
FP1
E10
NOTE 3
1
(L-4)
(L-1)
(L-1)
(L-4)
404-7
404-6
(L-4)
510-5
Rib
404-5
E20
404-5
731
WARNING
404-1
(L-1)
(L-1)
2
(L-1)
(L-1)
6
7
Bosses
Lens Ass'y
IR Lever
Magic VU Knob Holder
Side Case R Ass'y
Cassette Cover Ass'y
Front Case Ass'y
404-3
404-3

NOTE 3:

When replacing the Mechanism Chassis Ass'y, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.

NOTE 4:

In early products, a sheet is used. When replacing the Side Case L Unit, it is not neccessary to place the sheet.

WARNING:

DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.
REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.

FRONT CASE PORTION & LAMP PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(83)	Lens Hood	❷	3(404)-1	-
2	(84)	Lens Ring	❷	-----	-
3	(E40)	Front C.B.A.	❷	(404)-2, P6501	-
4	(89)	Front ESD Angle	❷	(L-1)	-
5	(82)	Infrared Panel	❷	2(L-2)	-
6	(81)	Front Case	❷	-----	-

↑ A ↑ B ↑ C ↑ D ↑ E ↑ F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(281)	Light Protector	❷	3(L-3)	-
2	(282)	Light Reflector	❷	2(404)-3	-
3	(284)	Lamp Socket Unit	❷	-----	-
4	(283)	Lamp	❷	-----	9

↑ A ↑ B ↑ C ↑ D ↑ E ↑ F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

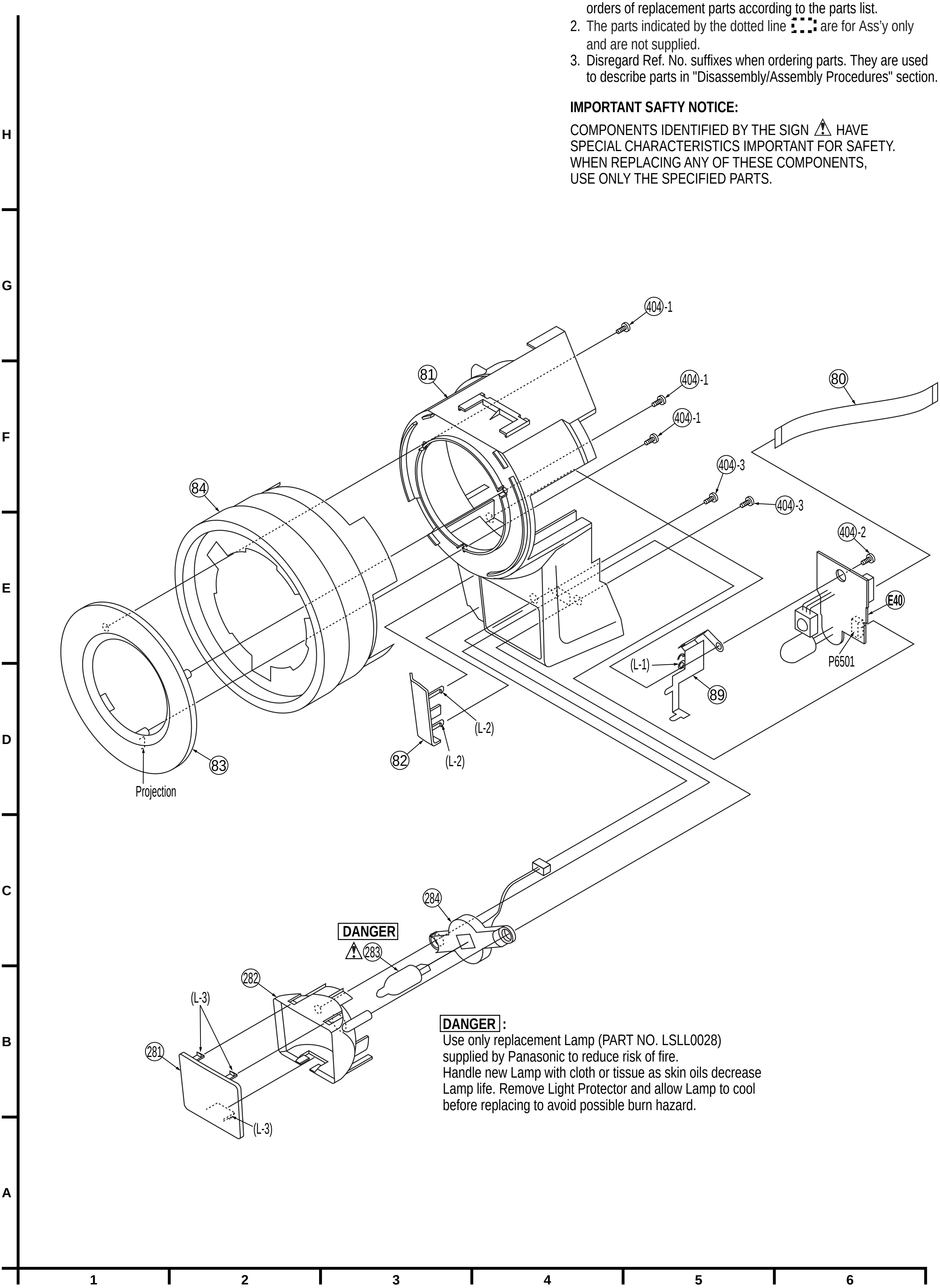
❷ FRONT CASE SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

IMPORTANT SAFTY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.


H
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6
404-1
81
404-1
80
404-1
404-3
84
404-3
404-2
E40
P6501
(L-1)
89
(L-2)
82
(L-2)
83
Projection
284
DANGER
⚠283
282
(L-3)
281
(L-3)

DANGER :
Use only replacement Lamp (PART NO. LSLL0028) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils decrease Lamp life. Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

CCD PORTION & LENS PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(E70)	CCD C.B.A.	❸	2(422)	10
2	(66)	Filter Rubber	❸	-----	10
3	㉒	Optical Filter	❸	-----	10

↑ ↑ ↑ ↑ ↑ ↑
A B C D E F

How to read chart shown above:
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(69)	Focus Motor Unit	❸	2(507), Unsolder	-
2	(68)	Zoom Motor Unit	❸	3(507), Unsolder	11

↑ ↑ ↑ ↑ ↑ ↑
A B C D E F

How to read chart shown above:
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

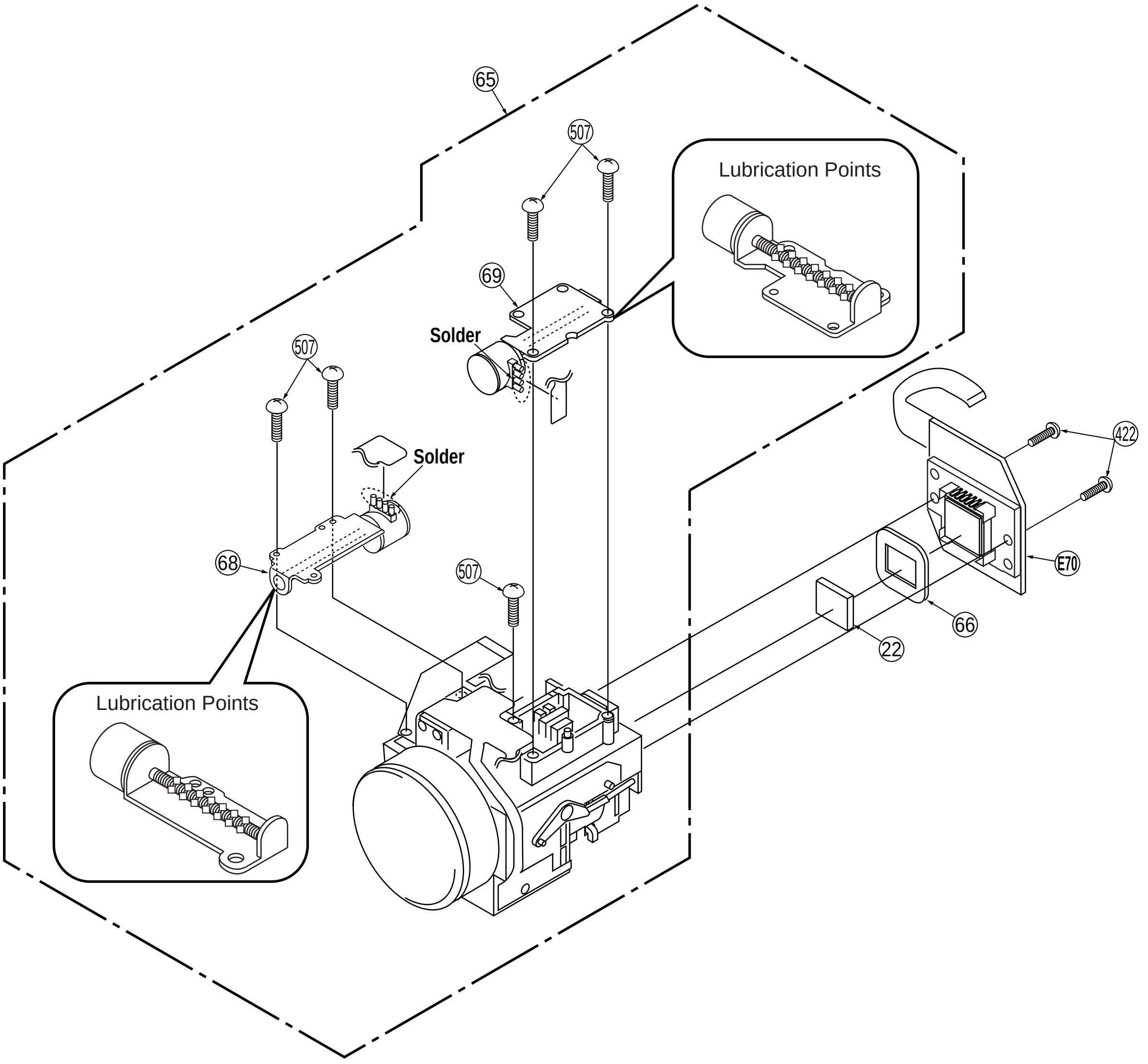
❸ CCD AND LENS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
☐☐☐	Grease	Availability from Factroy	LSUQ0002


65
507
Lubrication Points
69
Solder
507
Solder
68
507
422
E70
66
22
Lubrication Points
H
G
F
E
D
C
B
A
1
2
3
4
5
6

TOP CASE PORTION & EVF PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(E80)	Top Operation C.B.A.	❹	4(416), P001	-
2	(E30)	Microphone C.B.A.	❹	(404)	-
3	㊿	EVF Unit	❹	3(L-1)	12

A B C D E F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

Note:
When disassembling or reassembling, make sure that no dust gets in EVF Unit.

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	-	EVF Case Ass'y	❹	(402), FP951	13
2	㊵	Eye Cap	❹	-----	-
3	(60)	EVF Protect A	❹	4(L-2)	-
4	(E50) ㊹ (57) (54) (276) (274)	EVF Back Light C.B.A. LED Holder LED Diffusion Sheet LCD Panel Protect Plate B EVF Mask	❹	2(L-3), FP952 2(L-4) 2(L-5) ----- ----- -----	-
5	(58)	Protect Plate A	❹	-----	-
6	(56) (55)	Lens Lens Holder	❹	(L-6) -----	14
7	(53)	Eye Sight Lever A	❹	(402)	14
8	(52)	Eye Sight Lever B	❹	-----	14
9	(59)	EVF Protect B	❹	-----	-

A B C D E F

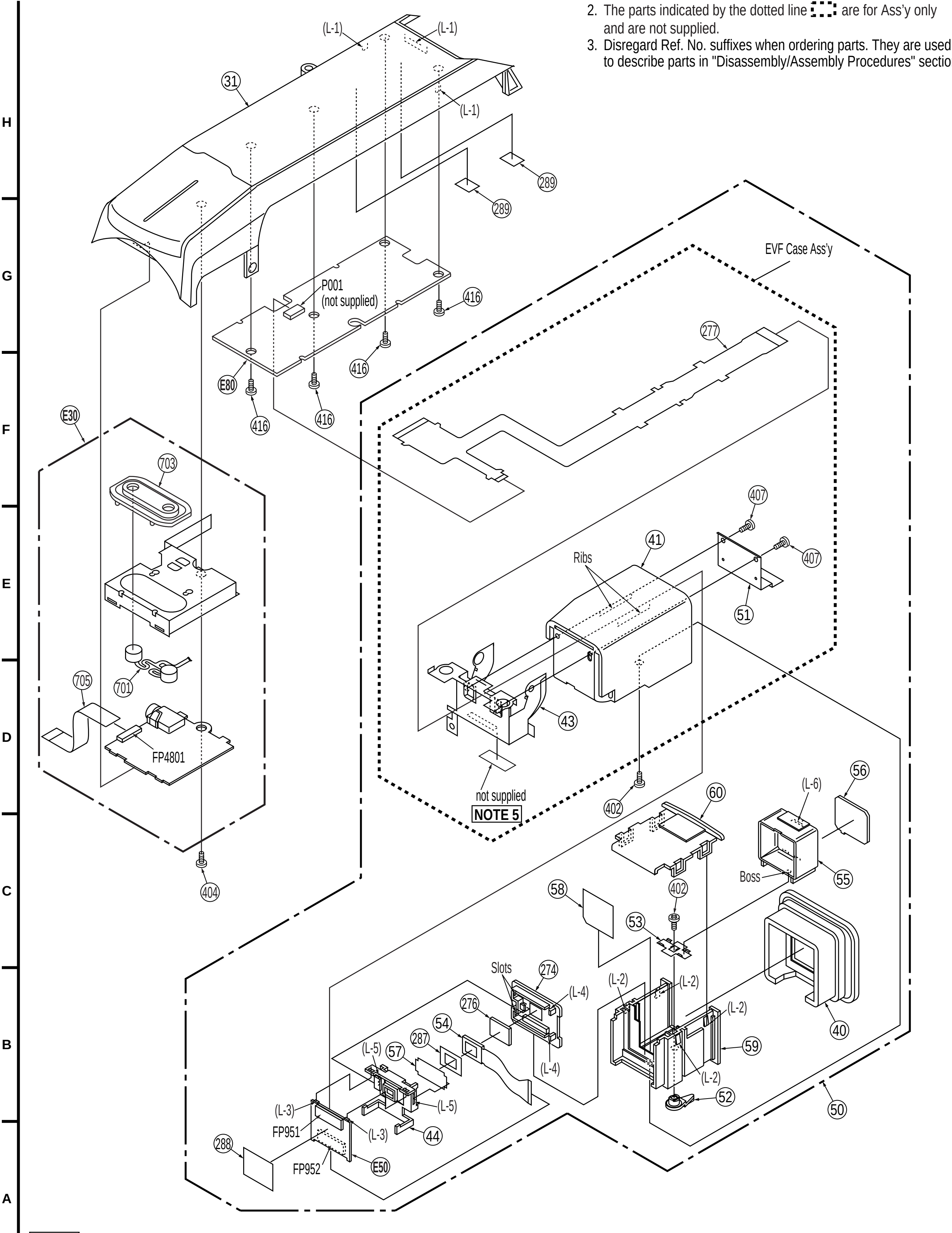
How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

❹ TOP CASE AND EVF SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.



H
G
F
E
D
C
B
A
(L-1)
(L-1)
(L-1)
31
289
289
P001
(not supplied)
416
416
416
416
E80
E30
703
701
705
FP4801
404
EVF Case Ass'y
277
407
407
41
Ribs
51
43
not supplied
NOTE 5
402
60
56
(L-6)
55
Boss
58
402
53
Slots
274
(L-4)
(L-4)
276
54
287
(L-5)
57
(L-5)
(L-3)
FP951
(L-3)
44
288
FP952
E50
(L-2)
(L-2)
(L-2)
(L-2)
59
40
52
50
1
2
3
4
5
6

NOTE 5:

In early products, a sheet is used. When replacing the EVF Angle Unit, do not place the sheet.

SIDE CASE R PORTION & LCD PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(261)	Front Cover	❺	(404)	19
2	-	LCD Case Ass’y	❺	(404) , (509)	15
3	(72)	Tripod Frame	❺	(402)	-

A B C D E F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(94)	LCD Cace A Unit	❺	2 (403), 9(L-1)	-
2	(96)	LCD Shaft Unit	❺	FP8001	-
3	(95)	LCD Case B	❺	(404)	16
4	(E60)	LCD C.B.A.	❺	3(L-2), FP8002, Unsolder	17
5	(98)	LCD Panel Unit	❺	8(L-3)	17
6	(99)	Lead Light Panel Unit	❺	-----	17
7	(100)	Lamp Unit	❺	3(L-4), LCD Sheet Unit	18

A B C D E F

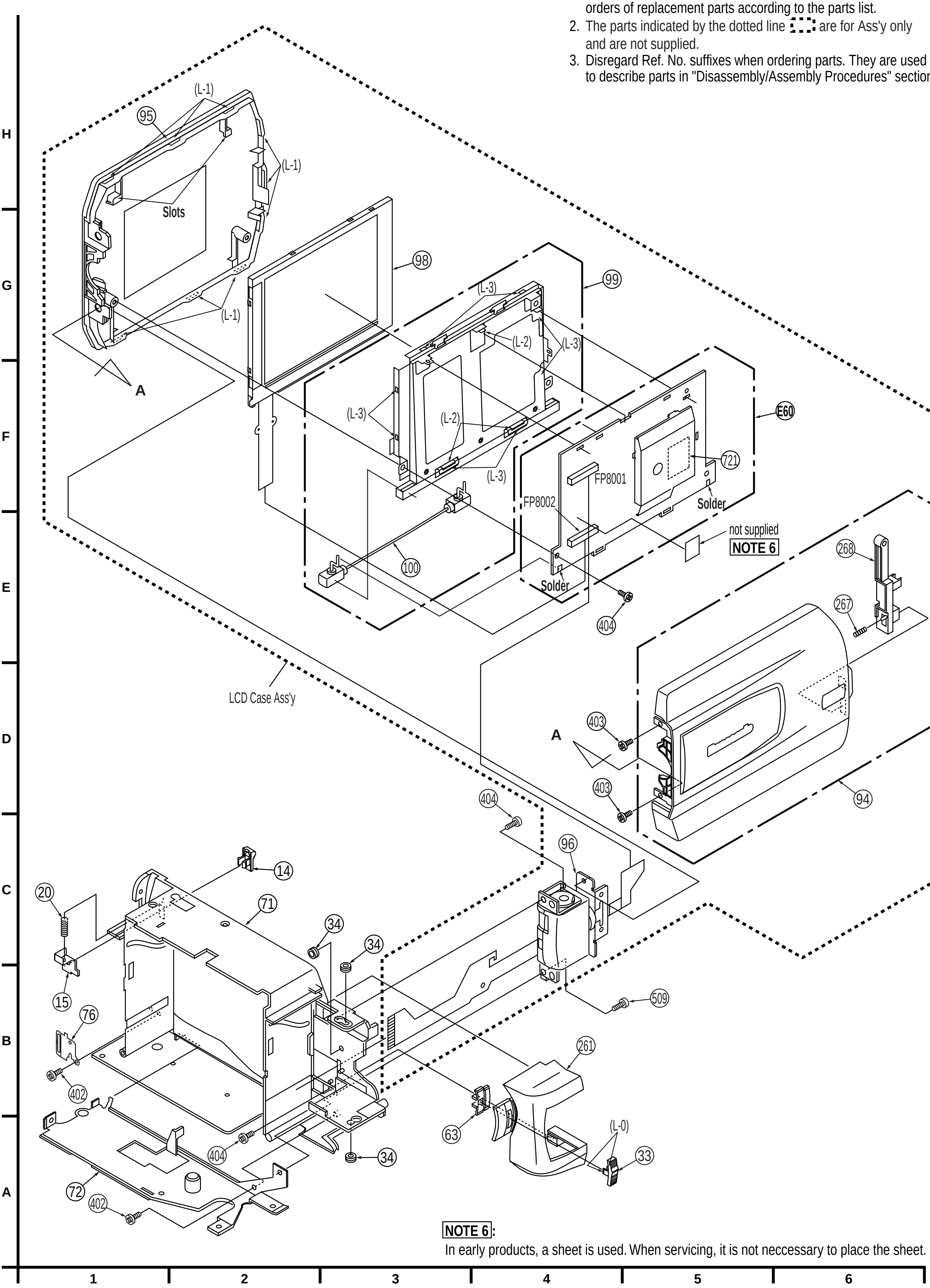
How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

❺ SIDE CASE R AND LCD SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⁝⁝ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.



(L-1)
95
(L-1)
Slots
(L-1)
A
98
99
(L-3)
(L-2)
(L-3)
(L-3)
(L-2)
(L-3)
E60
721
FP8001
FP8002
Solder
Solder
not supplied
NOTE 6
100
404
268
267
LCD Case Ass'y
403
A
403
94
404
96
14
20
71
34
34
509
15
76
261
402
63
(L-0)
33
404
34
72
402
H
G
F
E
D
C
B
A
1
2
3
4
5
6

NOTE 6: In early products, a sheet is used. When servicing, it is not neccessary to place the sheet.

Notes in chart

1. **Removal of Cassette Cover Ass'y**
   CAUTION:
   Be careful not to apply any pressure to the Garage Unit of the Mechanism Chassis Ass'y.
   Remove it in the order shown below.
   1) Open the LCD.
   2) Slide the EJECT Switch with the power supplied.
      Note:
      If it doesn't, eject manually. Refer to "METHOD FOR EJECTING WITH POWER OFF."

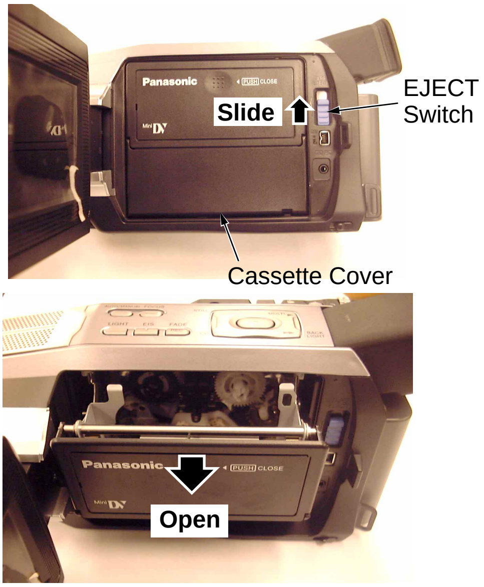

Slide
EJECT Switch
Cassette Cover
Open

Fig. D2-1

   3) Push the Cassette Cover to release the Locking Tab (L-1a) as shown.

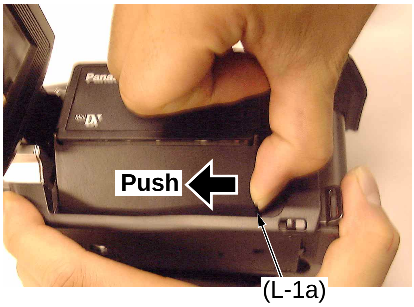


Fig. D2-2

   4) Push the Cassette Cover to release the Locking Tab (L-1b).

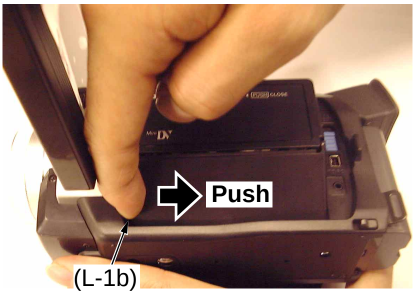


Fig. D2-3

   5) Push the both side of the Cassette Cover to release the Locking Tabs (L-1c) and (L-1d) from the slots of the Side Case R.

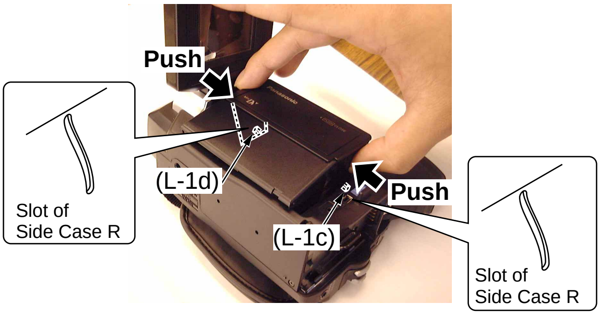

Push
Slot of Side Case R
(L-1d)
Push
(L-1c)
Slot of Side Case R

Fig. D2-4

   6) Open the Cassette Cover as shown.

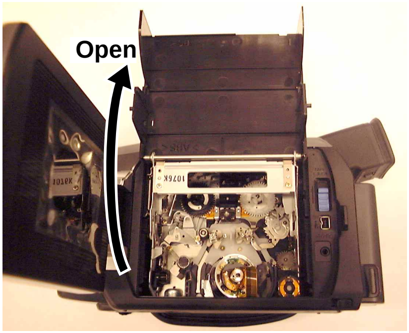


Fig. D2-5

   7) Pinch and pull the Cassette Cover to release the Locking Tab (L-1e) while holding the Garage Unit carefully as shown. Then, release the Locking Tab (L-1f).
      CAUTION:
      Do not break the Cassette Cover.

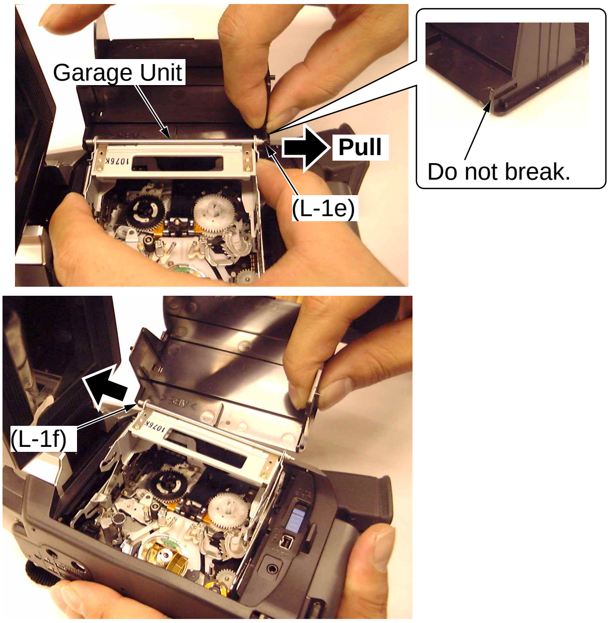

Garage Unit
Pull
Do not break.
(L-1e)
(L-1f)

Fig. D2-6

Installation of Cassette Cover Ass'y

CAUTION:

Be careful not to apply any pressure to the Garage Unit of the Mechanism Chassis Ass'y.

Install it in the order shown below.

1) Set the Locking Tabs (L-1f). Then, pinch and pull the Cassette Cover to set the Locking Tab (L-1e) while holding the Garage Unit carefully. Then, put the Cassette Cover on the Mechanism Chassis Ass'y.

   CAUTION:

   Do not break the Cassette Cover.

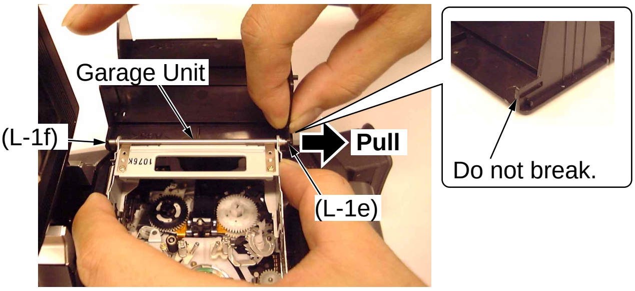

Garage Unit
(L-1f)
Pull
(L-1e)
Do not break.

Fig. D2-7

2) Push the both side of the Cassette Cover to set the Locking Tabs (L-1c) and (L-1d) to slots of the Side Case R.

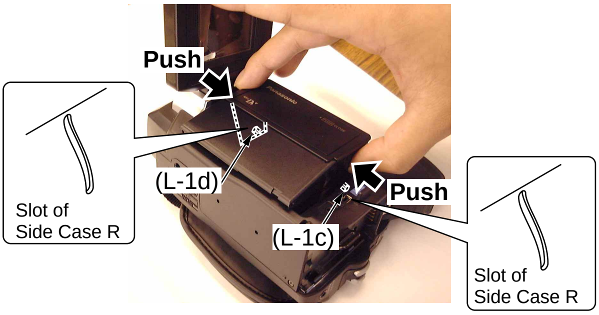

Push
(L-1d)
Push
(L-1c)
Slot of
Side Case R
Slot of
Side Case R

Fig. D2-8

3) Push down the upper portion of the Cassette Cover to close as shown.

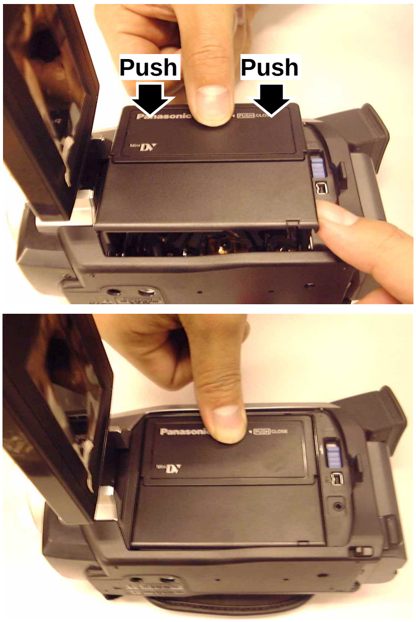


Fig. D2-9

4) Push down the lower portion of the Cassette Cover to set Locking Tabs (L-1a) and (L-1b).

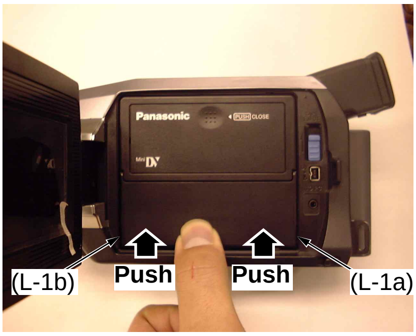

(L-1b)
Push
Push
(L-1a)

Fig. D2-10

2. Removal of Side Case L Unit

Take care not to damage the F.P.C.s or the Speaker Cable.

1) After removing the 6 Screws (404-1), release the Portion A of the Side Case L Unit at first. Then, release the Phone Jack of the Rear C.B.A.
2) Disconnect the Speaker Cable and the F.P.C.s from the Connectors P1, FP6 and FP9.

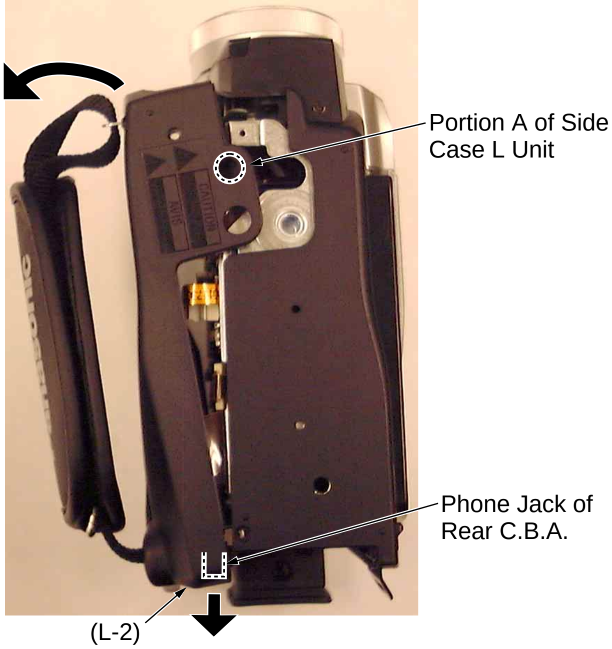

Portion A of Side Case L Unit
Phone Jack of Rear C.B.A.
(L-2)

Fig. D3

Installation of Zoom Switch F.P.C. of Side Case L Unit

When connecting the Zoom Switch F.P.C. to the Connector FP9 on the Main C.B.A., make it as shown.

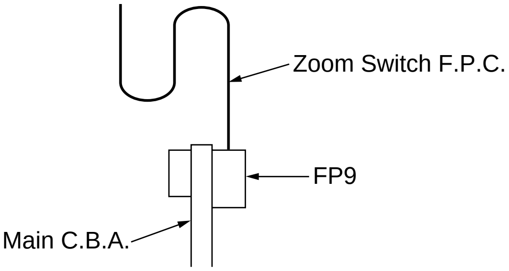

Zoom Switch F.P.C.
FP9
Main C.B.A.

Fig. D4

3. Removal of Speaker

1) Open the Hand Strap and release it from the hole of the Strap Angle front.
2) Remove the Screw (404-2).
3) Remove the Strap Angle front and the Speaker Angle. Then, remove the Speaker.

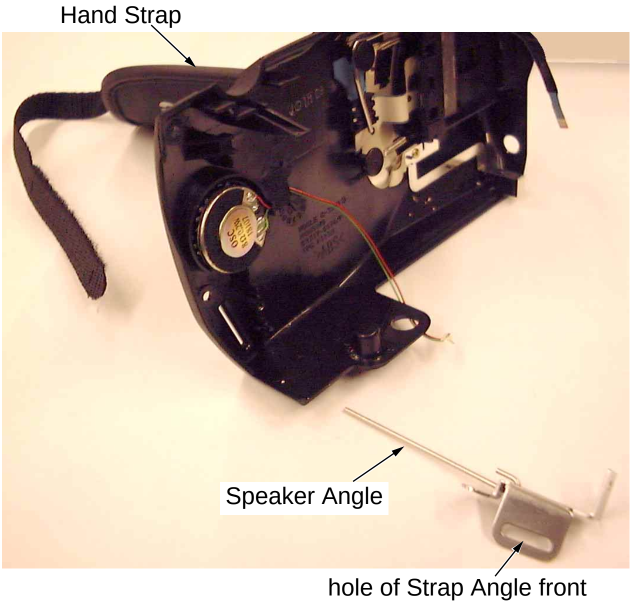

Hand Strap
Speaker Angle
hole of Strap Angle front

Fig. D5

4. Installation of Main C.B.A.

Take care not to damage the Flexible Cables.

1) Connect the Flexible Cables to the connectors on the Main C.B.A, verifying that the direction of the Flexible Cables is correct. Refer to "REMOVAL/INSTALLATION OF F.P.C. FROM NON ZIF (Zero Insertion Force) CONNECTOR."

5. Removal/Installation of Rear C.B.A.

When removing/installing the Rear C.B.A., raise the EVF Ass'y.

6. **Installation of Lens Ass'y**
   Install the Lens Ass'y so that the IR Lever is set to the Magic VU Knob Holder.

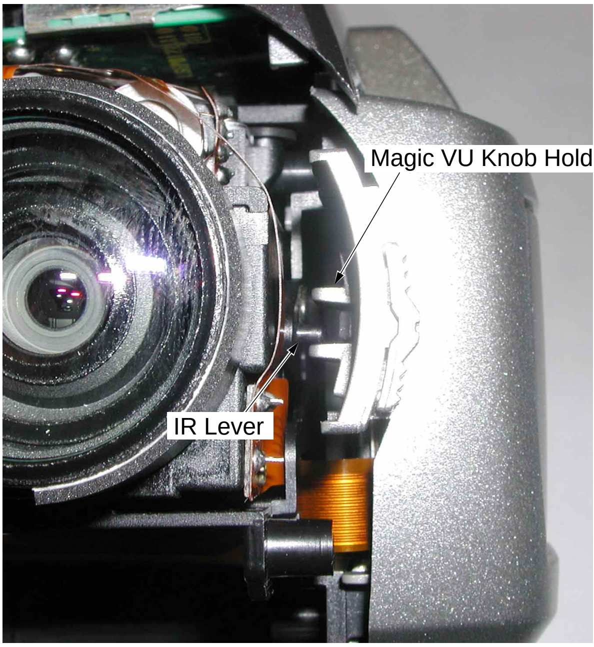


Fig. D6

7. **Removal of Top Case & EVF Ass'y**
   To remove the Screw (404-6), raise the EVF Ass'y.
   Installation of Top Case & EVF Ass'y
   Secure the Rib of the Top Case & EVF Ass'y to the Side Case R Ass'y.

8. **Replacement of Mechanism Chassis Ass'y**
   When replacing the Mechanism Chassis Ass'y, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.
   Installation of Mechanism Chassis Ass'y
   When installing the Mechanism Chassis Ass'y, be sure to make the Capstan F.P.C. between the Mechanism Chasis Ass'y and the Tripod Frame as shown.

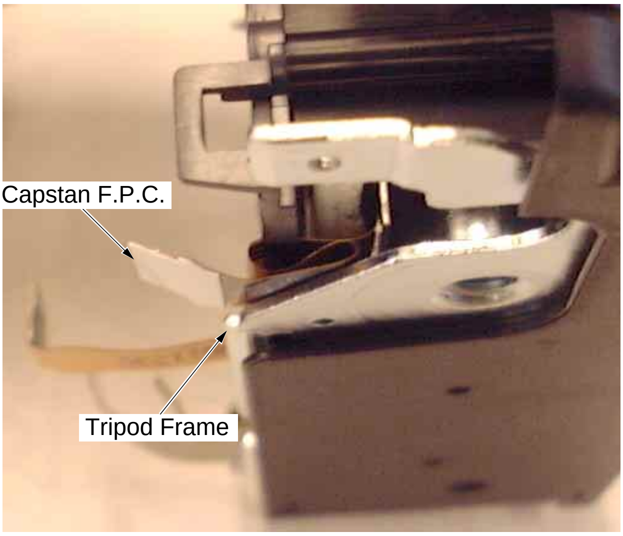


Fig. D7

9. **Replacement of Lamp**
   When replacing the Lamp, refer to "HOW TO REPLACE THE LAMP (LSLL0028) OF BUILT-IN LIGHT" in SERVICE NOTES.

DANGER:
Use only replacement Lamp (PART NO. LSLL0028) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils decrease Lamp life.
Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

10. **Removal of CCD C.B.A., Filter Rubber, Optical Filter**
    CAUTION:
    1) When removing the CCD C.B.A., take care that the Optical Filter does not fall out.
    2) Take extreme caution when removing the CCD C.B.A. because it is easily damaged by static electricity. Use a Wrist Strap while removing and installing.
    3) Do not touch the CCD window surface when handling.

    Installation of CCD C.B.A., Filter Rubber, Optical Filter
    Install in order shown below.
    1) Install the Optical Filter correctly.
       Note: Make sure that no dust gets on the Optical Filter and in the Lens Unit. Clean it with lens cleaning paper dampened with lens cleaner if necessary.
    2) Install the Filter Rubber on the Optical Filter correctly as shown below.
       Note: Make sure that no dust gets on the Filter Rubber.
    3) Install the CCD C.B.A. to the Lens Unit. Then, secure the 2 Screws (422) while keeping the CCD C.B.A. pressed toward the upper right corner.
       Note: Do not touch the Lens Surface. Clean their surface with lens cleaning paper dampened with lens cleaner if necessary.

11. **Installation of Zoom Motor Unit**
    Install the Zoom Motor Unit so that the Shaft of the Zoom Motor Unit is set in the Holder. Then, tighten the 3 Screws (507).

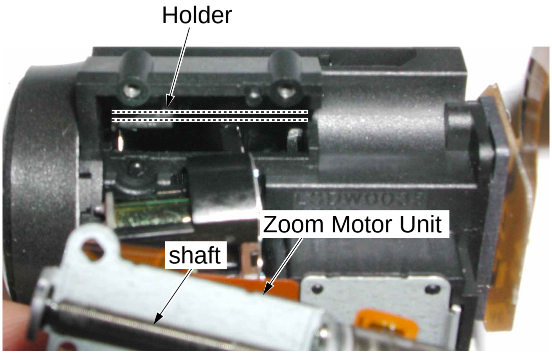


Fig. D8

12. Installation of EVF Unit

1) Secure the 3 Locking Tabs (L-1) on the Top Case Unit.

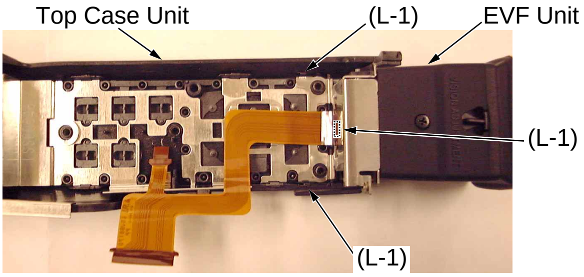

Top Case Unit
(L-1)
EVF Unit
(L-1)
(L-1)

Fig. D9

13. Removal of EVF Case Ass'y

Work carefully so as not to damage the Top F.P.C. in the EVF Case Ass'y.

1) Remove the Screw (402).
2) Pull off the EVF Case Ass'y with grasping the Eye Cap carefully.

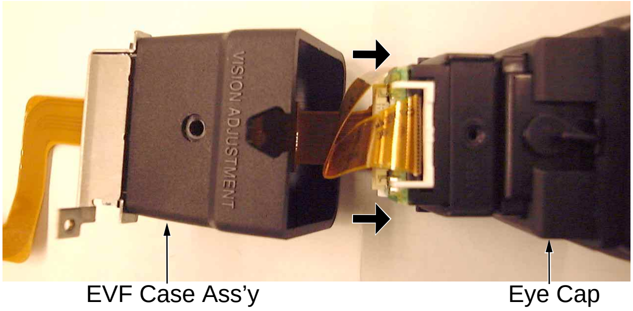

VISION ADJUSTMENT
EVF Case Ass'y
Eye Cap

Fig. D10

Installation of EVF Case Ass'y

1) Confirm that the Top F.P.C. is set to ribs in the EVF Case.
2) Connect the Top F.P.C. to the Connector FP951 on the EVF Back Light C.B.A.
3) Install into the EVF Case Ass'y with bending the Top F.P.C. as shown.

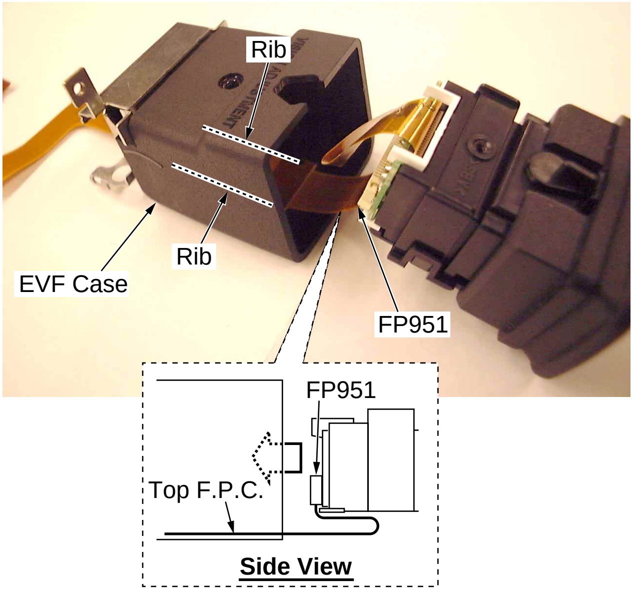

Rib
Rib
EVF Case
FP951
FP951
Top F.P.C.
Side View

Fig. D11

14. Installation of Lens Holder, Eye Sight Lever A, Eye Sight Lever B

1) Install the Eye Sight Levers A and B into the EVF Protect B taking care that Portion "a" of the Eye Sight Lever A is installed in the correct direction as shown. Then, tighten the Screw (402).
2) Install the Lens Holder so that the boss of the Lens Holder is set to Portion "a" of the Eye Sight Lever A.

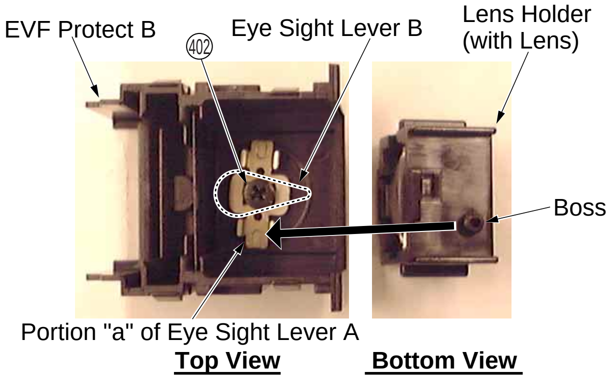

EVF Protect B
402
Eye Sight Lever B
Lens Holder
(with Lens)
Boss
Portion "a" of Eye Sight Lever A
Top View
Bottom View

Fig. D12

15. Installation of LCD Case Ass'y

Work carefully so as not to damage the F.P.C.

1) Put the LCD F.P.C. through the slot of the Side Case R.
2) To tighten 2 Screws (404, 509), close the LCD Case Ass'y, or turn it to the right or left.
3) Confirm that the LCD F.P.C. is set with 2 Bosses on the Side Case R as shown.

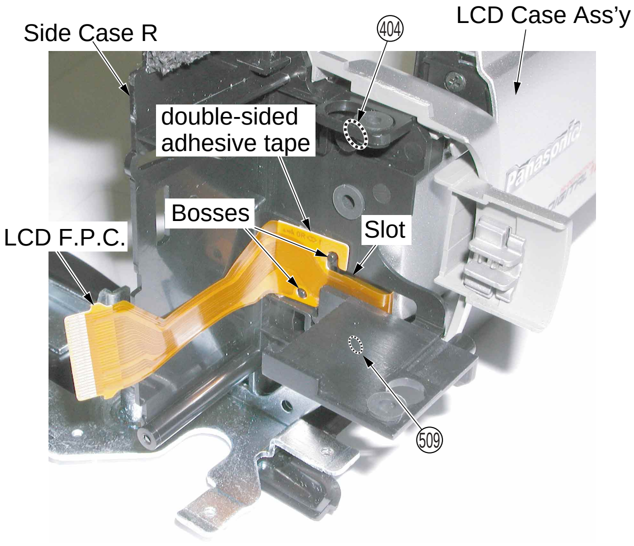

Side Case R
404
LCD Case Ass'y
double-sided
adhesive tape
Bosses
Slot
LCD F.P.C.
509
Panasonic

Fig. D13

16. Removal of LCD Case B

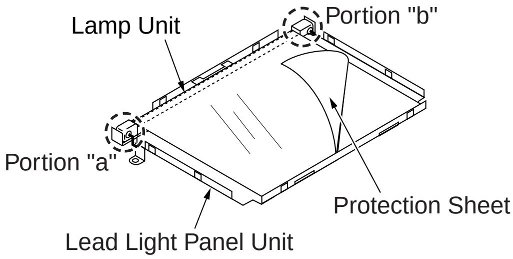
When removing the LCD Case B, pull the LCD Unit out of the slots while raising the lower portion of the LCD Unit.

17. Installation of LCD Panel Unit, Lead Light Panel Unit

a. When replacing the Lead Light Panel Unit, make sure to remove the Protection Sheet as shown below.

b. Use extreme care when handling the Lead Light Panel Unit and the LCD Panel Unit to avoid damage, dust, and spots (especially fingerprints, etc.).
The use of clean cotton gloves is highly recommended.

c. Be careful not to apply any pressure to Portion "a" or "b" of the Lamp Unit as shown below.


Lamp Unit
Portion "b"
Portion "a"
Protection Sheet
Lead Light Panel Unit

d. After replacing the Lead Light Panel Unit, confirm that the Terminal of the Lamp Unit is soldered correctly as shown below.

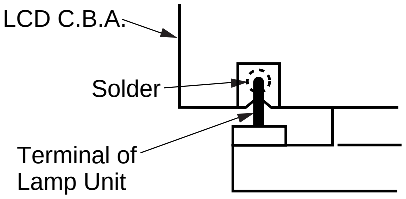
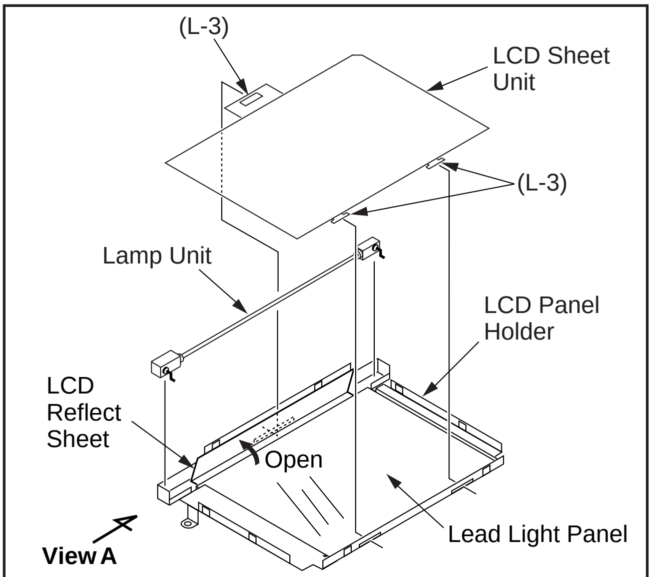

LCD C.B.A.
Solder
Terminal of
Lamp Unit

Fig. D14

18. Installation of Lamp Unit


(L-3)
LCD Sheet Unit
(L-3)
Lamp Unit
LCD Panel Holder
LCD Reflect Sheet
Open
Lead Light Panel
View A

a. When installing the Lamp Unit, confirm that the Lamp Unit is positioned as shown below.

b. Use extreme caution when handling the Lead Light Panel and the LCD Sheet Unit to avoid damage, dust, and spots (especially fingerprints, etc.).

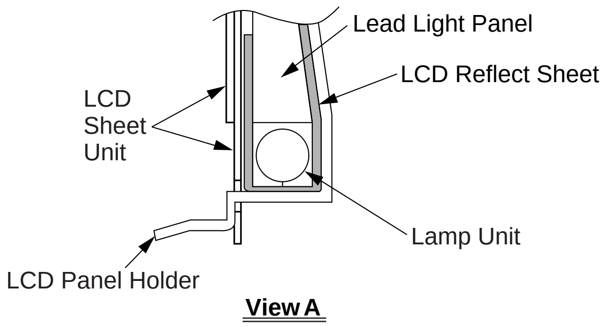

Lead Light Panel
LCD Reflect Sheet
LCD Sheet Unit
Lamp Unit
LCD Panel Holder
View A

Fig. D15

19. Installation of Magic VU Knob Holder, Magic VU Knob

Install them into the Front Cover, verifying that the direction of the Magic VU Knob Holder and the Magic VU Knob are correct.

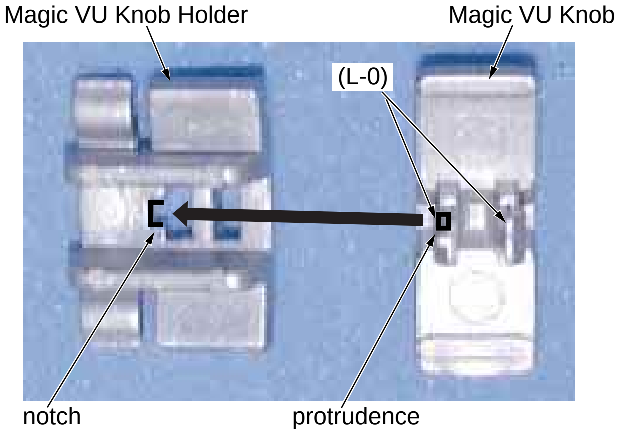

Magic VU Knob Holder
Magic VU Knob
(L-0)
notch
protrudence

Fig. D16

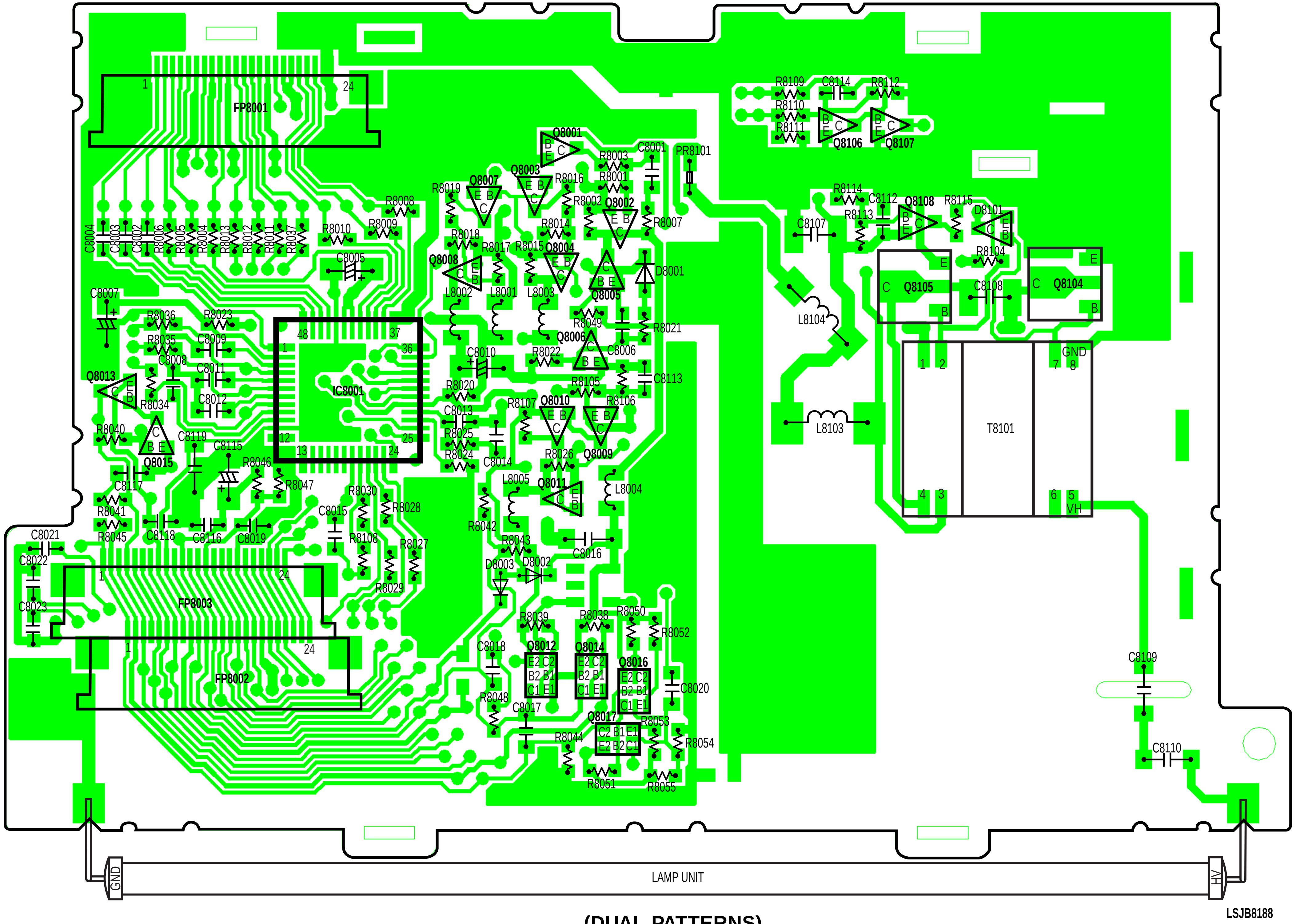
LCD C.B.A. LSEP8188B1

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

(FOIL SIDE)


FP8001
FP8002
FP8003
IC8001
T8101
LAMP UNIT
GND
HV
VH
LSJB8188
Q8001
Q8002
Q8003
Q8004
Q8005
Q8006
Q8007
Q8008
Q8009
Q8010
Q8011
Q8012
Q8013
Q8014
Q8015
Q8016
Q8017
Q8104
Q8105
Q8106
Q8107
Q8108
D8001
D8002
D8003
D8101
PR8101
L8001
L8002
L8003
L8004
L8005
L8103
L8104
C8001
C8002
C8003
C8004
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C8006
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R8053
R8054
R8055
R8104
R8105
R8106
R8107
R8108
R8109
R8110
R8111
R8112
R8113
R8114
R8115

(DUAL PATTERNS)

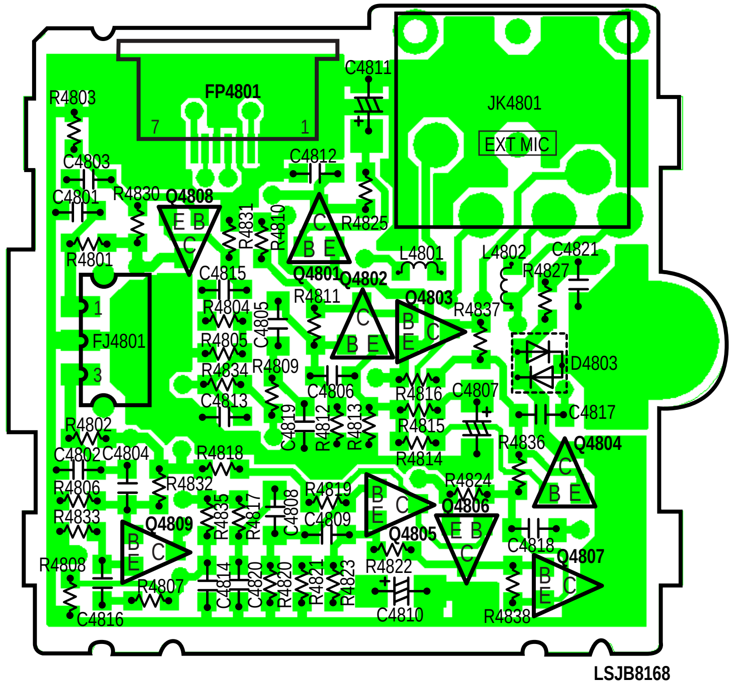
LCD C.B.A. LSEP8188B1
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

MICROPHONE C.B.A.   LSXM0024

"FOR REFERENCE ONLY"

NOTE:
MICROPHONE C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

(FOIL SIDE)


FP4801
7
1
C4811
JK4801
EXT MIC
R4803
C4803
C4812
C4801
R4830
Q4808
E B
C
R4831
R4810
C
B E
R4825
R4801
C4815
Q4801
Q4802
L4801
L4802
C4821
R4827
R4811
Q4803
R4837
FJ4801
R4804
R4805
C4805
C
B E
B
E C
D4803
R4834
R4809
C4806
R4816
C4807
C4813
C4817
R4802
C4819
R4812
R4813
R4815
R4836
Q4804
C4802
C4804
R4818
R4814
C
B E
R4806
R4832
C4808
R4819
R4824
R4833
Q4809
R4835
R4817
C4809
Q4806
B
E
C
Q4805
E B
C
C4818
Q4807
R4808
R4807
C4814
C4820
R4820
R4821
R4823
R4822
B
C
E
C4816
C4810
R4838
LSJB8168

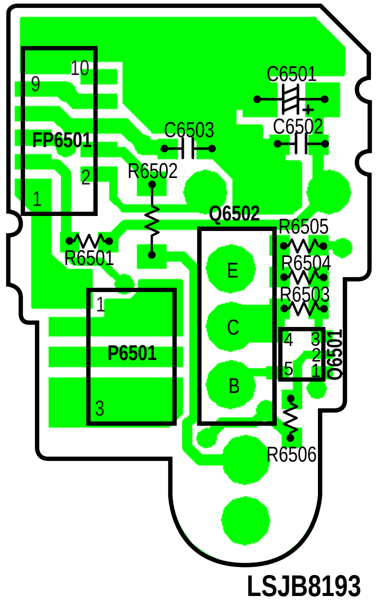
(DUAL PATTERNS)

FRONT C.B.A.   LSEP8193A1

"FOR REFERENCE ONLY"

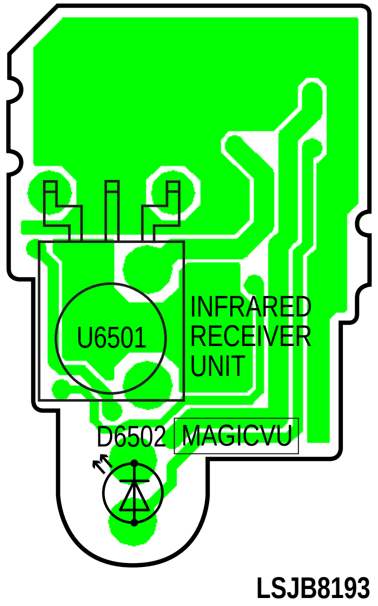
NOTE:
FRONT C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

(COMPONENT SIDE)


10
9
C6501
FP6501
C6503
C6502
R6502
2
1
Q6502
R6505
R6501
R6504
E
R6503
1
C
4
3
2
P6501
5
1
Q6501
B
3
R6506
LSJB8193

(DUAL PATTERNS)

(FOIL SIDE)


U6501
INFRARED
RECEIVER
UNIT
D6502
MAGICVU
LSJB8193

(DUAL PATTERNS)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

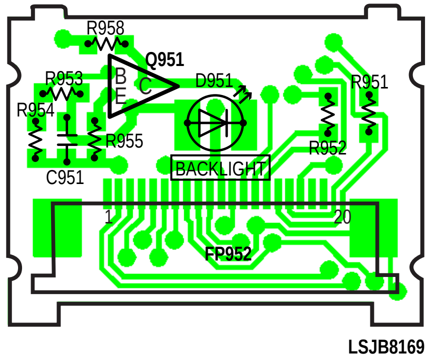
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

EVF BACK LIGHT C.B.A.   LSEP8169B1

"FOR REFERENCE ONLY"

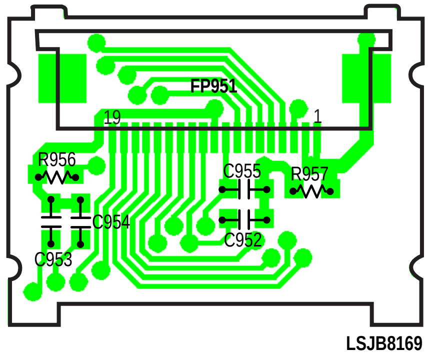
NOTE:
EVF BACK LIGHT C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

(COMPONENT SIDE)


R958
Q951
R953
B
C
E
D951
R951
R954
R955
R952
C951
BACKLIGHT
1
20
FP952
LSJB8169

(DUAL PATTERNS)

(FOIL SIDE)


FP951
19
1
R956
C955
R957
C954
C952
C953
LSJB8169

(DUAL PATTERNS)

REAR C.B.A. LSEP8183P1 (A,B,C,D,E,F,G,H,I,J,K,L) / LSEP8183Q1 (M,N,O)

NOTE:
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PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

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NOTE:
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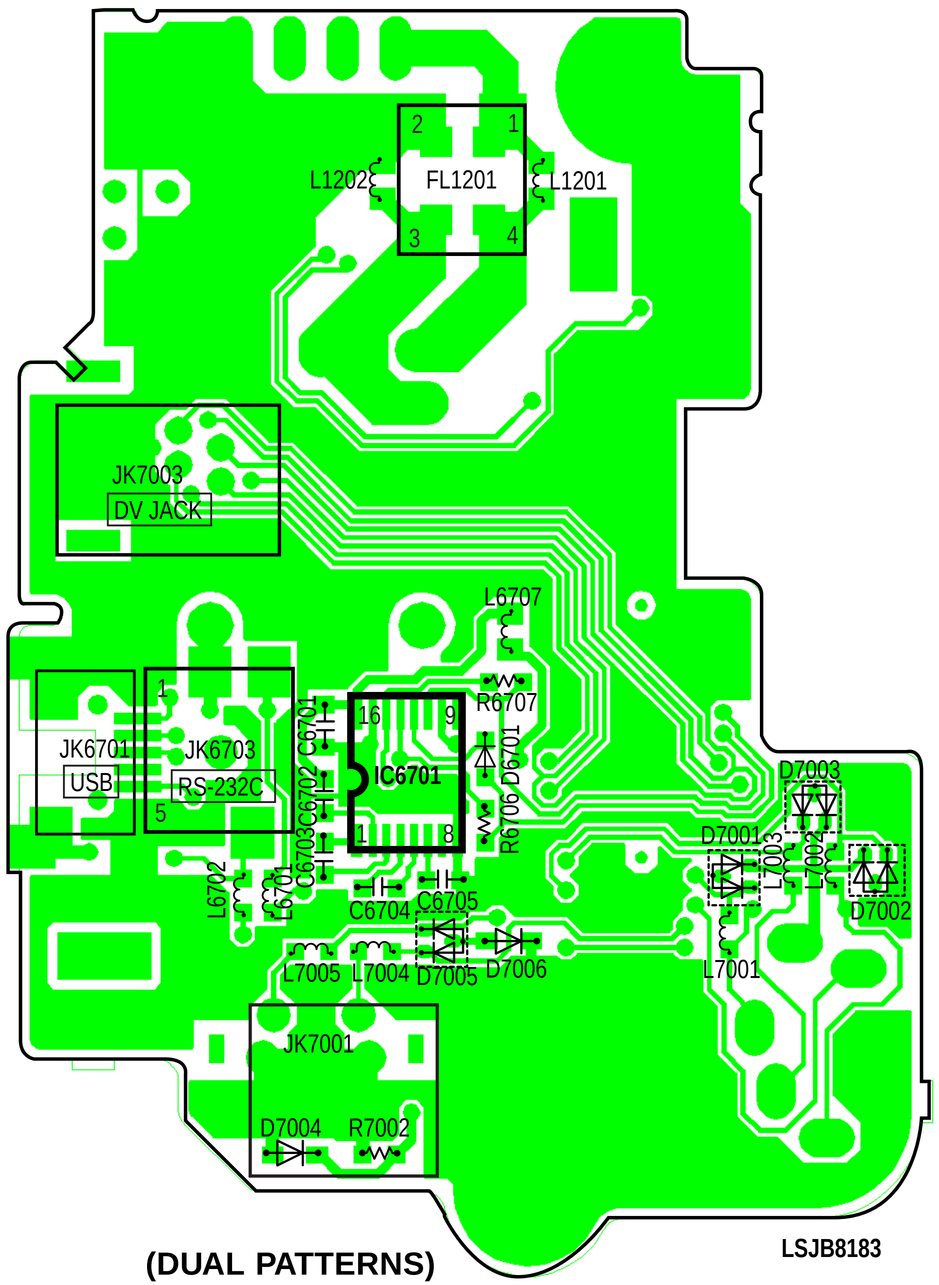
REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART
OF MODELS & MARKS

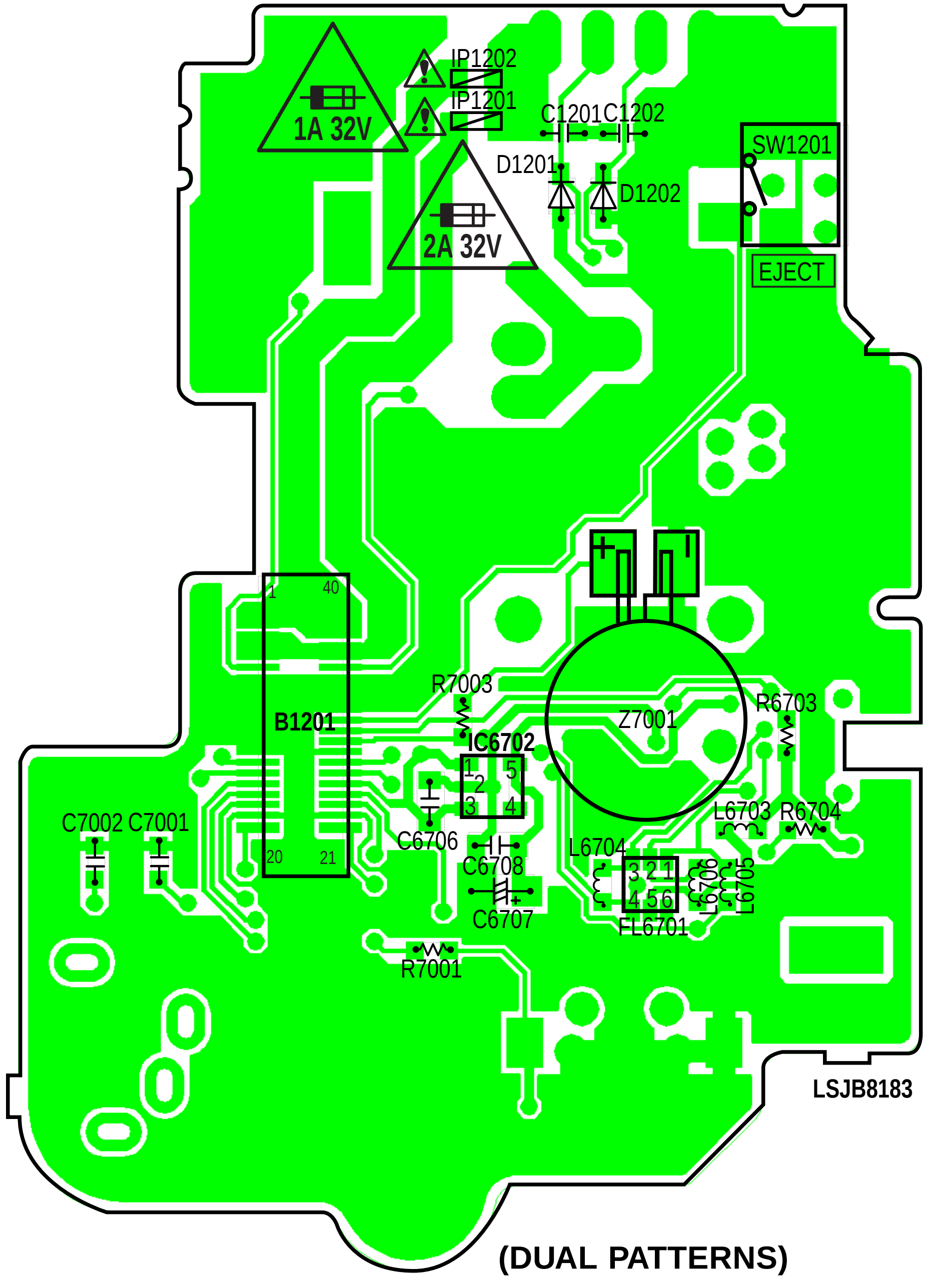
MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O

(COMPONENT SIDE)


2
1
L1202
FL1201
L1201
3
4
JK7003
DV JACK
JK6701
USB
1
JK6703
RS-232C
5
C6701
C6702
C6703
L6701
L6702
16
9
IC6701
1
8
L6707
R6707
D6701
R6706
C6704
C6705
L7005
L7004
D7005
D7006
D7003
D7001
L7003
L7002
D7002
L7001
JK7001
D7004
R7002
LSJB8183

(DUAL PATTERNS)

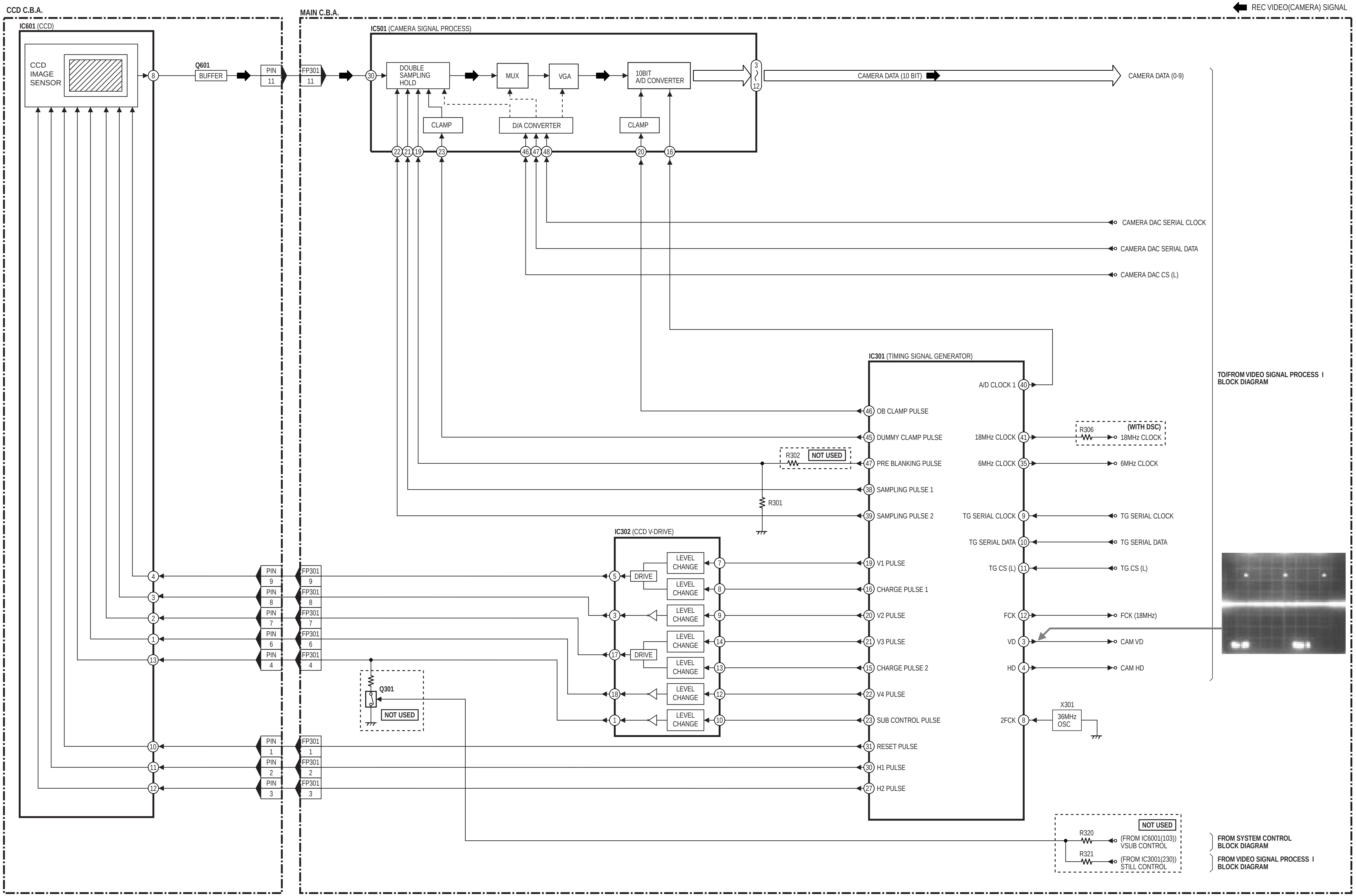
(FOIL SIDE)


1A 32V
IP1202
IP1201
C1201
C1202
D1201
D1202
2A 32V
SW1201
EJECT
1
40
B1201
20
21
R7003
IC6702
1
2
3
5
4
Z7001
R6703
C7002
C7001
C6706
C6708
C6707
L6704
L6703
R6704
3 2 1
4 5 6
FL6701
L6706
L6705
R7001
LSJB8183

(DUAL PATTERNS)

REAR C.B.A. LSEP8183P1/LSEP8183Q1
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

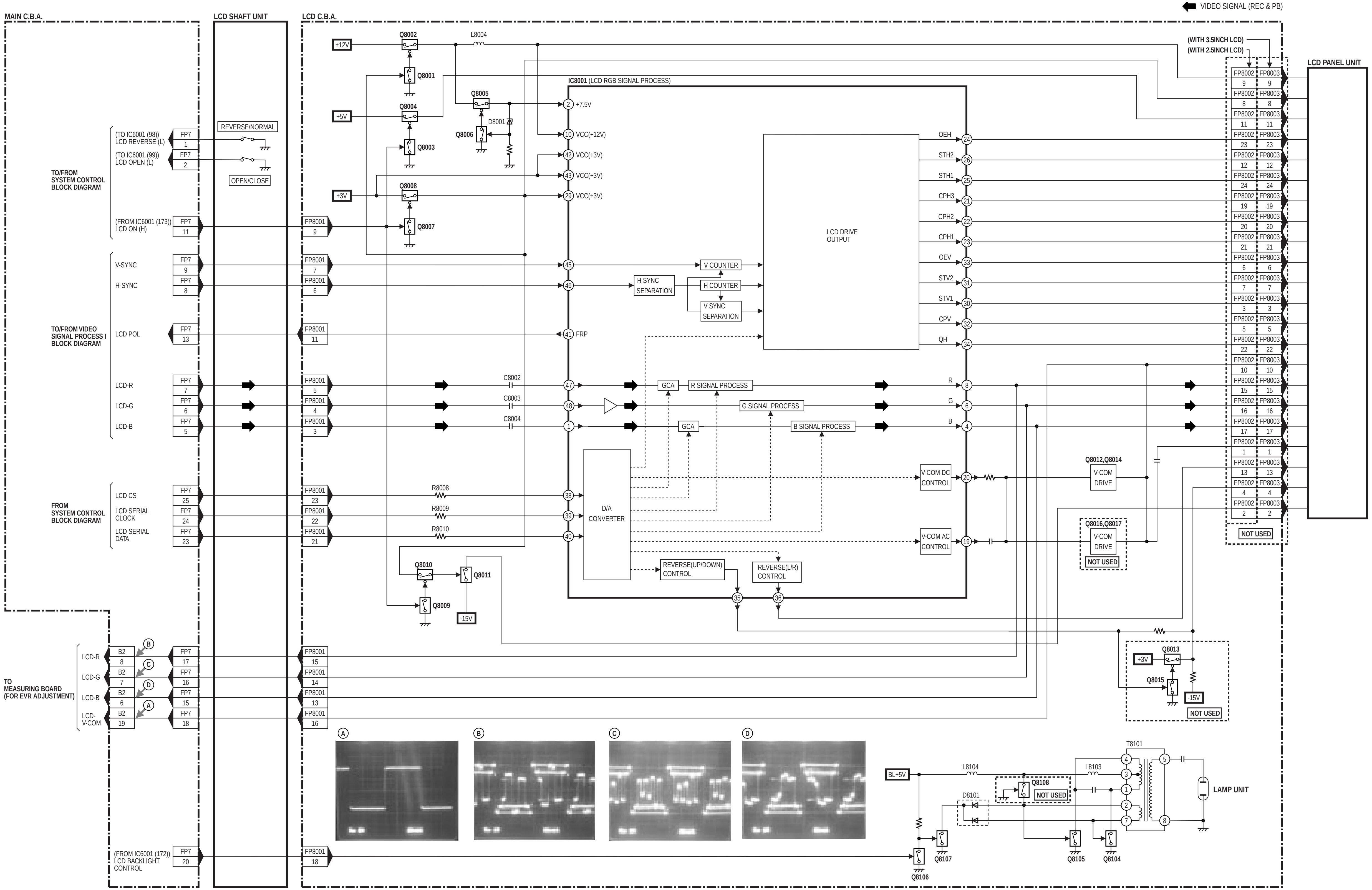
CCD DRIVE BLOCK DIAGRAM


REC VIDEO(CAMERA) SIGNAL
CCD C.B.A.
MAIN C.B.A.
IC601 (CCD)
CCD IMAGE SENSOR
Q601
BUFFER
PIN
FP301
IC501 (CAMERA SIGNAL PROCESS)
DOUBLE SAMPLING HOLD
MUX
VGA
10BIT A/D CONVERTER
CLAMP
D/A CONVERTER
CLAMP
CAMERA DATA (10 BIT)
CAMERA DATA (0-9)
CAMERA DAC SERIAL CLOCK
CAMERA DAC SERIAL DATA
CAMERA DAC CS (L)
TO/FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
IC301 (TIMING SIGNAL GENERATOR)
A/D CLOCK 1
OB CLAMP PULSE
DUMMY CLAMP PULSE
PRE BLANKING PULSE
SAMPLING PULSE 1
SAMPLING PULSE 2
V1 PULSE
CHARGE PULSE 1
V2 PULSE
V3 PULSE
CHARGE PULSE 2
V4 PULSE
SUB CONTROL PULSE
RESET PULSE
H1 PULSE
H2 PULSE
18MHz CLOCK
6MHz CLOCK
TG SERIAL CLOCK
TG SERIAL DATA
TG CS (L)
FCK
VD
HD
2FCK
(WITH DSC)
R306
18MHz CLOCK
6MHz CLOCK
TG SERIAL CLOCK
TG SERIAL DATA
TG CS (L)
FCK (18MHz)
CAM VD
CAM HD
X301
36MHz OSC
R302
NOT USED
R301
IC302 (CCD V-DRIVE)
LEVEL CHANGE
DRIVE
Q301
NOT USED
NOT USED
R320
R321
(FROM IC6001(103)) VSUB CONTROL
(FROM IC3001(230)) STILL CONTROL
FROM SYSTEM CONTROL BLOCK DIAGRAM
FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM

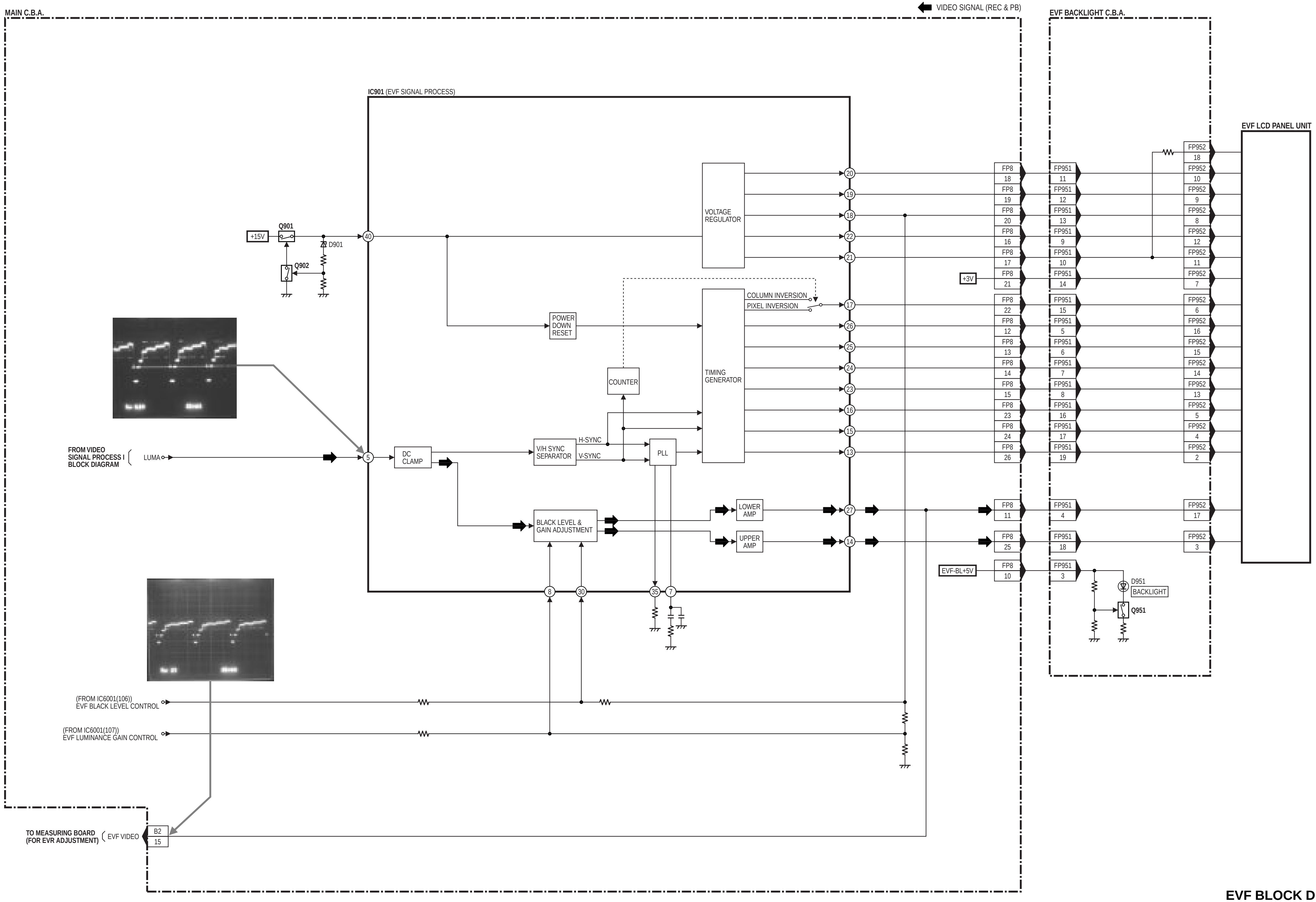
CCD DRIVE BLOCK DIAGRAM

NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

LCD BLOCK DIAGRAM


VIDEO SIGNAL (REC & PB)
MAIN C.B.A.
LCD SHAFT UNIT
LCD C.B.A.
LCD PANEL UNIT
(WITH 3.5INCH LCD)
(WITH 2.5INCH LCD)
+12V
Q8002
L8004
Q8001
+5V
Q8004
Q8005
D8001
Q8006
Q8003
+3V
Q8008
Q8007
IC8001 (LCD RGB SIGNAL PROCESS)
+7.5V
VCC(+12V)
VCC(+3V)
VCC(+3V)
VCC(+3V)
REVERSE/NORMAL
OPEN/CLOSE
(TO IC6001 (98))
LCD REVERSE (L)
(TO IC6001 (99))
LCD OPEN (L)
TO/FROM
SYSTEM CONTROL
BLOCK DIAGRAM
(FROM IC6001 (173))
LCD ON (H)
FP7
FP8001
V-SYNC
H-SYNC
TO/FROM VIDEO
SIGNAL PROCESS I
BLOCK DIAGRAM
LCD POL
FRP
V COUNTER
H SYNC
SEPARATION
H COUNTER
V SYNC
SEPARATION
LCD DRIVE
OUTPUT
OEH
STH2
STH1
CPH3
CPH2
CPH1
OEV
STV2
STV1
CPV
QH
LCD-R
LCD-G
LCD-B
C8002
C8003
C8004
GCA
R SIGNAL PROCESS
G SIGNAL PROCESS
B SIGNAL PROCESS
R
G
B
FROM
SYSTEM CONTROL
BLOCK DIAGRAM
LCD CS
LCD SERIAL
CLOCK
LCD SERIAL
DATA
R8008
R8009
R8010
D/A
CONVERTER
V-COM DC
CONTROL
V-COM AC
CONTROL
Q8012,Q8014
V-COM
DRIVE
Q8016,Q8017
NOT USED
REVERSE(UP/DOWN)
CONTROL
REVERSE(L/R)
CONTROL
Q8010
Q8011
Q8009
-15V
FP8002
FP8003
TO
MEASURING BOARD
(FOR EVR ADJUSTMENT)
LCD-V-COM
B2
A
B
C
D
Q8013
Q8015
(FROM IC6001 (172))
LCD BACKLIGHT
CONTROL
BL+5V
L8104
D8101
Q8108
L8103
T8101
LAMP UNIT
Q8106
Q8107
Q8105
Q8104

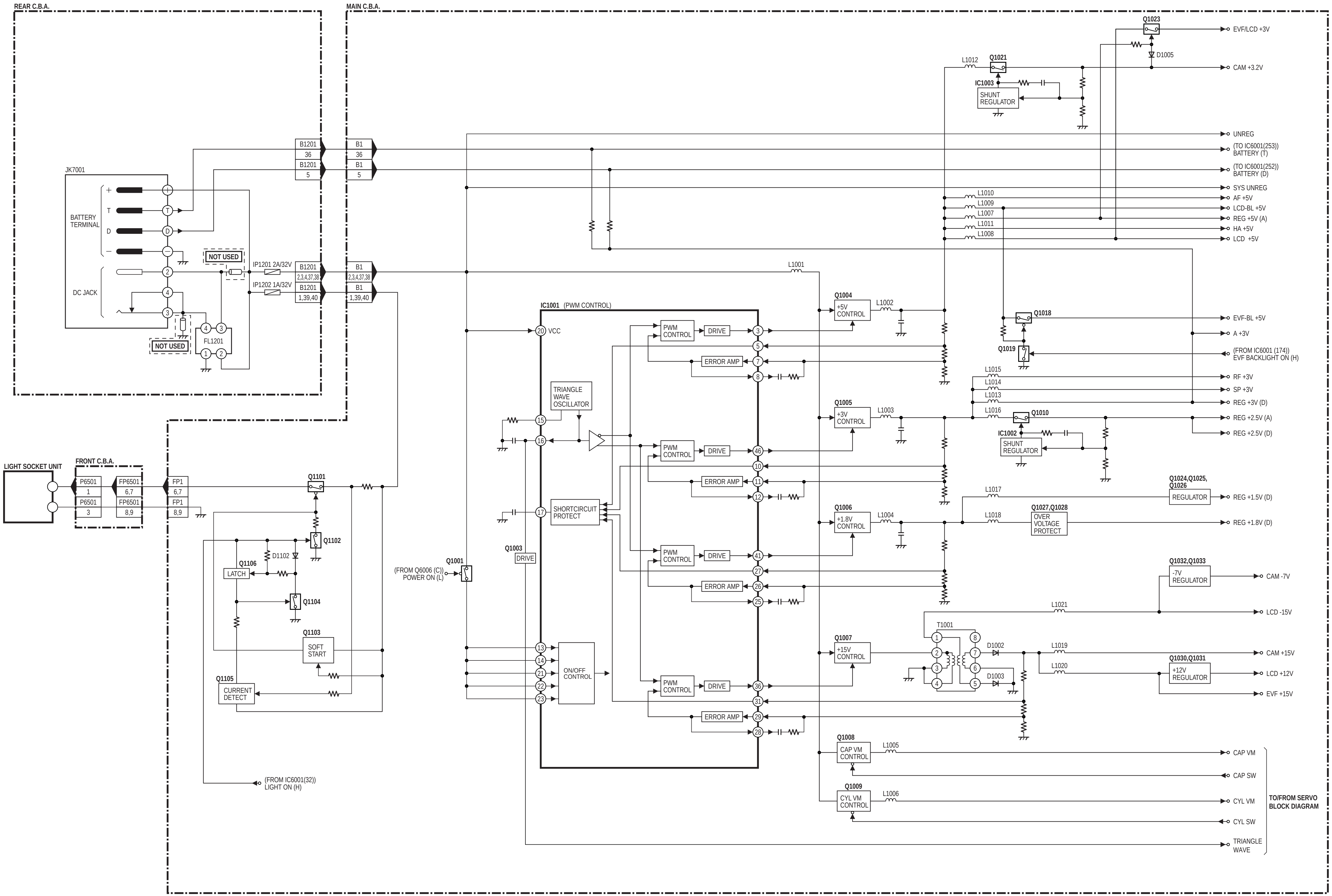
EVF BLOCK DIAGRAM


MAIN C.B.A.
VIDEO SIGNAL (REC & PB)
EVF BACKLIGHT C.B.A.
EVF LCD PANEL UNIT
IC901 (EVF SIGNAL PROCESS)
+15V
Q901
Q902
D901
40
VOLTAGE REGULATOR
20
19
18
22
21
POWER DOWN RESET
COLUMN INVERSION
PIXEL INVERSION
17
26
25
24
23
16
15
13
TIMING GENERATOR
COUNTER
H-SYNC
V-SYNC
V/H SYNC SEPARATOR
PLL
DC CLAMP
5
FROM VIDEO SIGNAL PROCESS I BLOCK DIAGRAM
LUMA
BLACK LEVEL & GAIN ADJUSTMENT
LOWER AMP
UPPER AMP
27
14
8
30
35
7
FP8 18
FP8 19
FP8 20
FP8 16
FP8 17
FP8 21
FP8 22
FP8 12
FP8 13
FP8 14
FP8 15
FP8 23
FP8 24
FP8 26
FP8 11
FP8 25
FP8 10
+3V
FP951 11
FP951 12
FP951 13
FP951 9
FP951 10
FP951 14
FP951 15
FP951 5
FP951 6
FP951 7
FP951 8
FP951 16
FP951 17
FP951 19
FP951 4
FP951 18
FP951 3
EVF-BL+5V
FP952 18
FP952 10
FP952 9
FP952 8
FP952 12
FP952 11
FP952 7
FP952 6
FP952 16
FP952 15
FP952 14
FP952 13
FP952 5
FP952 4
FP952 2
FP952 17
FP952 3
D951
BACKLIGHT
Q951
(FROM IC6001(106)) EVF BLACK LEVEL CONTROL
(FROM IC6001(107)) EVF LUMINANCE GAIN CONTROL
TO MEASURING BOARD (FOR EVR ADJUSTMENT)
EVF VIDEO
B2
15

EVF BLOCK DIAGRAM

NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

POWER SUPPLY BLOCK DIAGRAM


REAR C.B.A.
MAIN C.B.A.
JK7001
BATTERY TERMINAL
DC JACK
NOT USED
NOT USED
FL1201
IP1201 2A/32V
IP1202 1A/32V
B1201
36
B1201
5
B1201
2,3,4,37,38
B1201
1,39,40
B1
36
B1
5
B1
2,3,4,37,38
B1
1,39,40
LIGHT SOCKET UNIT
FRONT C.B.A.
P6501
1
P6501
3
FP6501
6,7
FP6501
8,9
FP1
6,7
FP1
8,9
Q1101
Q1102
D1102
Q1106
LATCH
Q1104
Q1103
SOFT START
Q1105
CURRENT DETECT
(FROM IC6001(32)) LIGHT ON (H)
(FROM Q6006 (C)) POWER ON (L)
Q1001
Q1003
DRIVE
IC1001 (PWM CONTROL)
VCC
TRIANGLE WAVE OSCILLATOR
SHORTCIRCUIT PROTECT
ON/OFF CONTROL
PWM CONTROL
DRIVE
ERROR AMP
L1001
Q1004
+5V CONTROL
L1002
Q1005
+3V CONTROL
L1003
Q1006
+1.8V CONTROL
L1004
Q1007
+15V CONTROL
T1001
D1002
D1003
L1019
L1020
L1021
Q1008
CAP VM CONTROL
L1005
Q1009
CYL VM CONTROL
L1006
Q1023
D1005
L1012
Q1021
IC1003
SHUNT REGULATOR
L1010
L1009
L1007
L1011
L1008
Q1018
Q1019
L1015
L1014
L1013
L1016
Q1010
IC1002
SHUNT REGULATOR
L1017
L1018
Q1027,Q1028
OVER VOLTAGE PROTECT
Q1024,Q1025, Q1026
REGULATOR
Q1032,Q1033
-7V REGULATOR
Q1030,Q1031
+12V REGULATOR
EVF/LCD +3V
CAM +3.2V
UNREG
(TO IC6001(253)) BATTERY (T)
(TO IC6001(252)) BATTERY (D)
SYS UNREG
AF +5V
LCD-BL +5V
REG +5V (A)
HA +5V
LCD +5V
EVF-BL +5V
A +3V
(FROM IC6001 (174)) EVF BACKLIGHT ON (H)
RF +3V
SP +3V
REG +3V (D)
REG +2.5V (A)
REG +2.5V (D)
REG +1.5V (D)
REG +1.8V (D)
CAM -7V
LCD -15V
CAM +15V
LCD +12V
EVF +15V
CAP VM
CAP SW
CYL VM
CYL SW
TRIANGLE WAVE
TO/FROM SERVO BLOCK DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

LCD C.B.A.

MODE PIN NO.	CAMERA
IC8001	
1	7.5
2	7.3
3	2.4
4	2.4
5	2.4
6	2.5
7	2.4
8	2.4
9	2.4
10	11.9
11	0
12	---
13	---
14	---
15	---
16	---
17	---
18	---
19	6.0
20	0
21	1.4
22	1.4
23	1.2
24	0.3
25	0
26	0
27	1.0
28	1.0
29	3.0
30	0
31	0
32	0
33	0
34	0
35	0
36	3.0
37	0
38	0
39	2.8
40	1.0
41	0
42	3.0
43	3.0
44	0
45	2.8
46	0
47	2.5
48	2.5
Q8001	
E	0
C	0
B	2.8
Q8002	
E	12.0
C	11.9
B	11.3
Q8003	
E	0
C	0
B	2.8
Q8004	
E	4.9
C	4.8
B	4.2
Q8005	
E	7.3
C	11.9
B	7.9
Q8006	
E	0
C	7.9
B	0.5
Q8007	
E	0
C	0
B	2.8
Q8008	
E	0
C	0
B	2.8
Q8009	
E	0
C	0
B	0.6
Q8010	
E	3.0
C	3.0
B	0
Q8011	
E	-14.6
C	-14.6
B	3.0
Q8012	
E1	0
C1	11.9
B1	0.6
E2	0.6
C2	-14.6
B2	0
Q8013	
E	3.0
C	3.0
B	0
Q8014	
E1	1.2
C1	0
B1	0.6
E2	0
C2	11.9
B2	1.2
Q8015	
E	0
C	0
B	3.0
Q8104	
E	0
C	4.6
B	-0.4
Q8105	
E	0
C	4.6
B	-0.4
Q8106	
E	0
C	0
B	0.7
Q8107	
E	0
C	0
B	0

VOLTAGE CHART
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A